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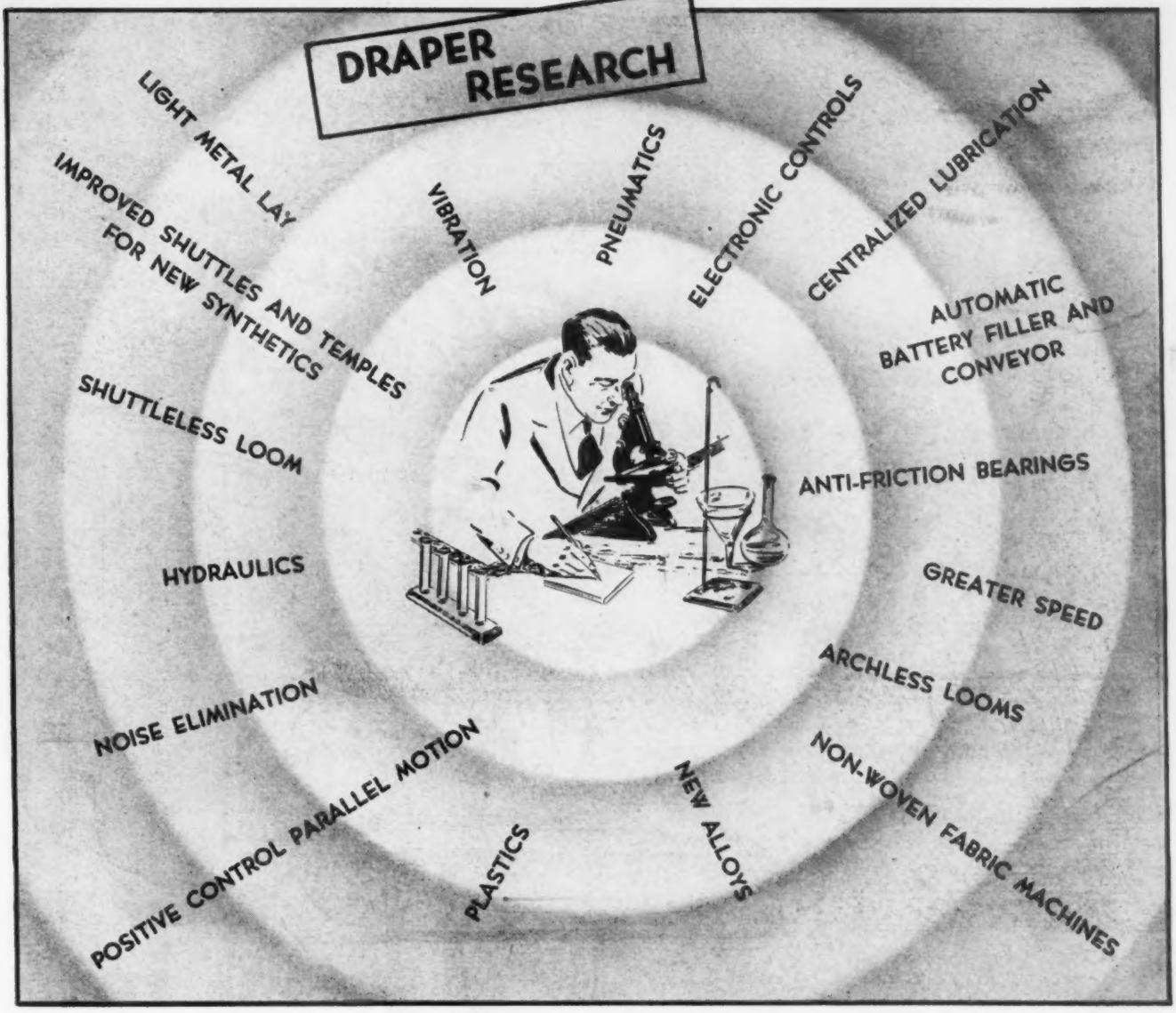

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Classified According to Reader Interest

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THE *Long-Range* VIEW

No Denkendorf Here

The name Denkendorf is, by now, quite familiar to most textile technicians as the name of the experimental and research unit on which the Germans pinned their hope to develop the spinning of synthetic fibers to the extent that ersatz fibers could completely replace the common natural fibers.

At Denkendorf, ace German technicians worked out to the last detail, for example, how German spinners could use rayon to replace cotton and wool. And, the spinners were expected to follow the procedures as developed at Denkendorf. The experimental plant, you see, had the backing of the Nazi government.

While it is true that the technicians at Denkendorf did develop some good methods for handling synthetic fibers, there is not much evidence that mills followed the Denkendorf recommendations. Perhaps the Nazi forcing of ersatz materials is partly to blame for the little love that German textile men have for synthetics. The attitude of many a German technician is summed up in the statement by one of them that he did not see why we in the United States were interested in synthetics when we had all the natural fibers we wanted! That reaction may be what one should expect from a person who not only was told what he had to use but also how to use it. How different is this German attitude toward synthetics from that of most U. S. technicians.

Contrast Denkendorf with the way U. S. textile men tackled the wartime problems of weaving nylon parachute cloth, of producing rayon tire-cord fabric, of substituting rayon for silk and nylon in hosiery, etc. The way our industry acquitted itself in meeting and solving its wartime problems has been a source of amazement. No Denkendorf was needed here.

We would be in a bad way if we had to depend upon our government to solve our textile problems. If we should ever come to that, we unquestionably would be as lethargic to using government-branded procedures as were the Germans.

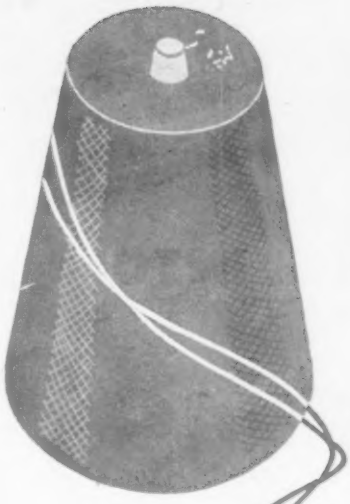
Once we seemed to be running into some danger of lethargy in regard to natural fibers, but it now appears that—spurred on by the better job being done in developing synthetics—more attention is being paid by the industry to research in and improvement of cotton and wool [T. W., Jan., 1947, p. 135].

We naturally take more pride in those things in which we play a part. None of us can be expected to be as enthusiastic about something which someone else thought up as we can be about our own brain child. And, no one can solve our problems for us so well as we can ourselves, for the simple reason that no one else will see all the factors as well as we do.

Research and development work such as is being done by individual or joint efforts of private enterprise elicits our enthusiastic support. We refer to such efforts as those by synthetic-fiber producers, by Dan River, Kendall, Chicopee, Deering Milliken, ITT, Callaway, TRI, AATCC, U. S. Rubber, Milton Harris, by the textile-machinery companies, by chemical manufacturers, and by many others. But we are not enthusiastic about operation by the government of any plant here similar to Denkendorf. We do not favor any plant operations by the government beyond the type which has already been undertaken by the four Regional Laboratories of the U.S.D.A.

The review of the technical Denkendorf reports presented in this issue of TEXTILE WORLD is given for its information value to U. S. technicians. It is not published with any idea that we feel we should have a Denkendorf here. Our textile industry has shown that one is not needed. Everything that the Germans developed at Denkendorf is but a drop in the bucket compared to our progress in the handling of synthetic fibers.

C. H. Bendigo



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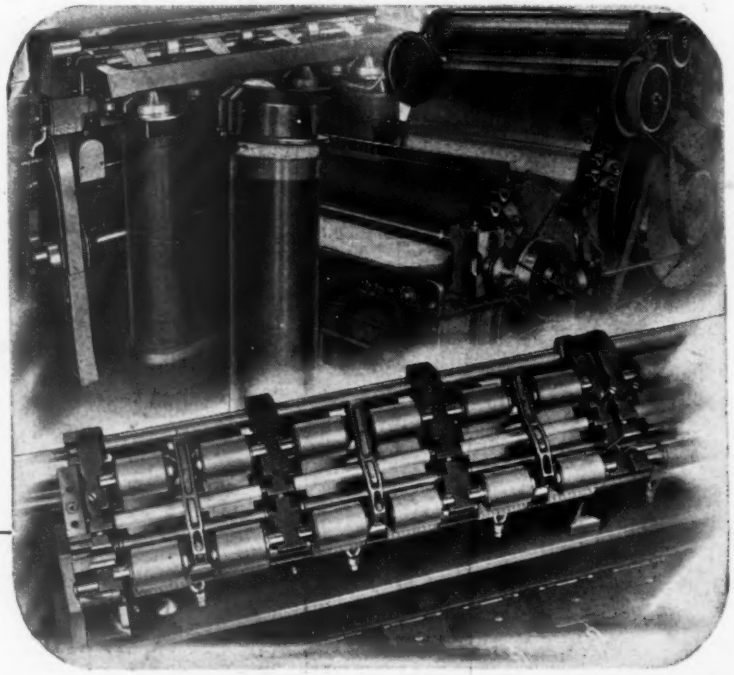
A consultation with our engineers will help you in developing a background plan to avoid unnecessary expense, needless delays and time-consuming experiments.



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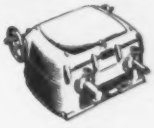

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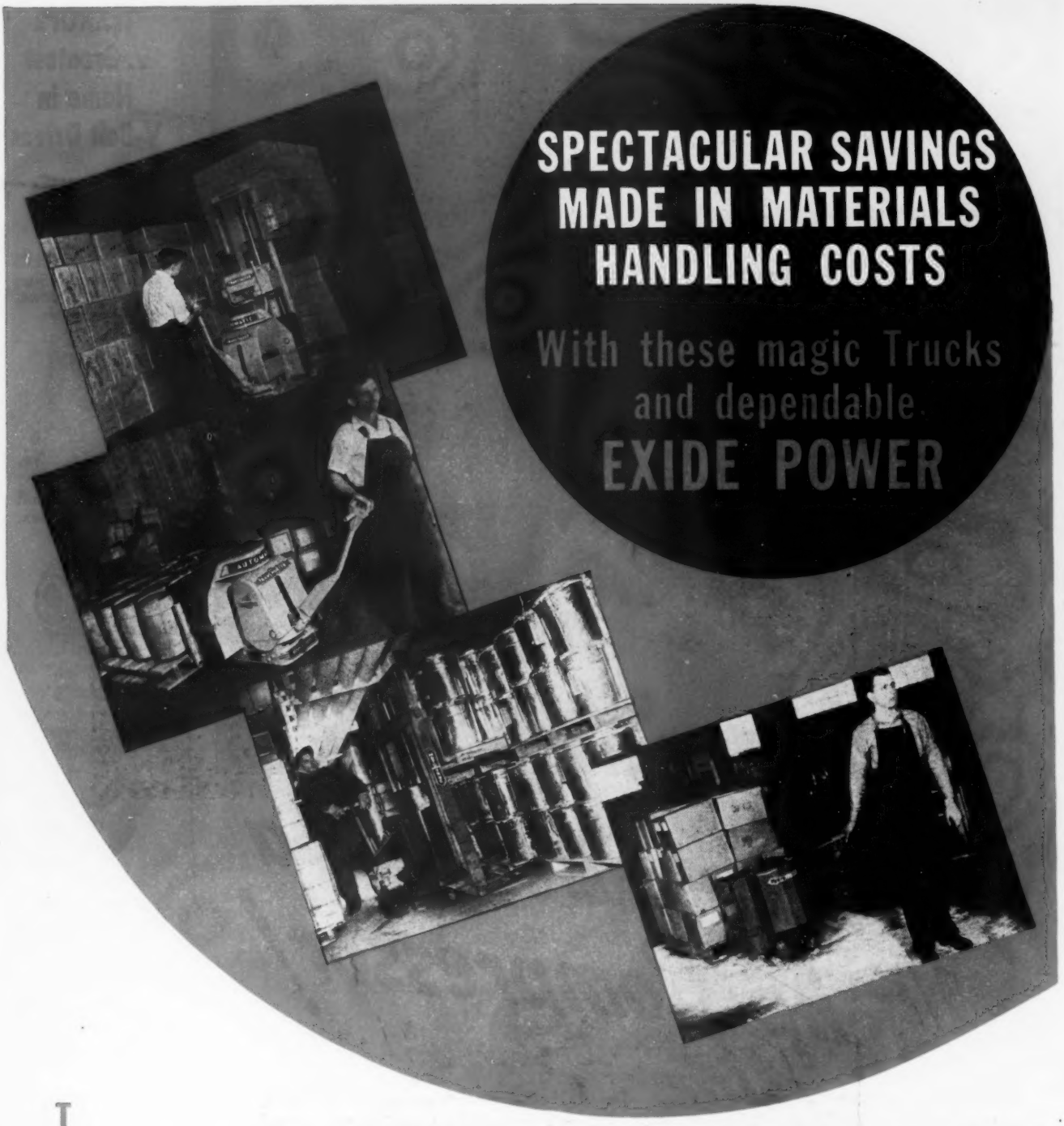

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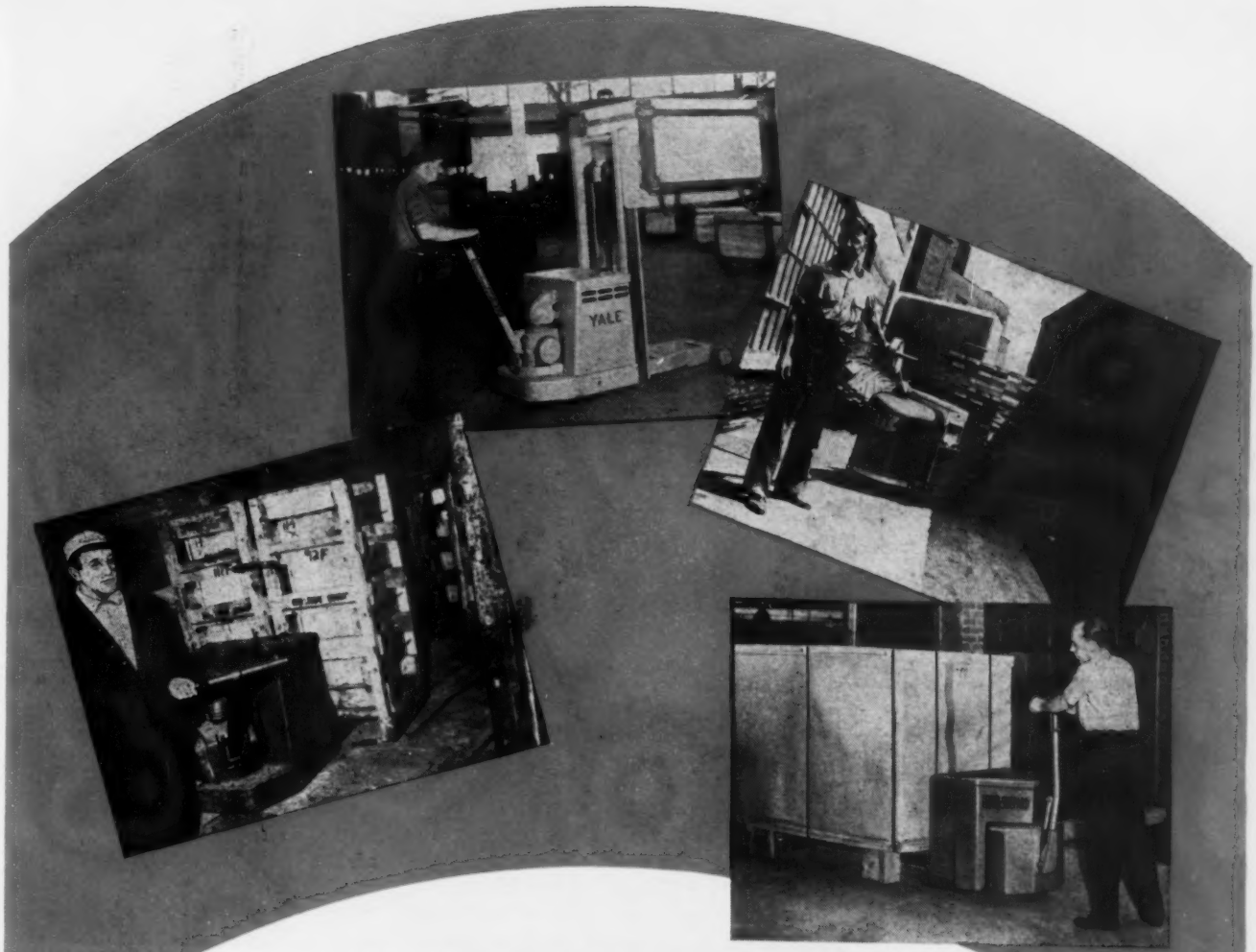

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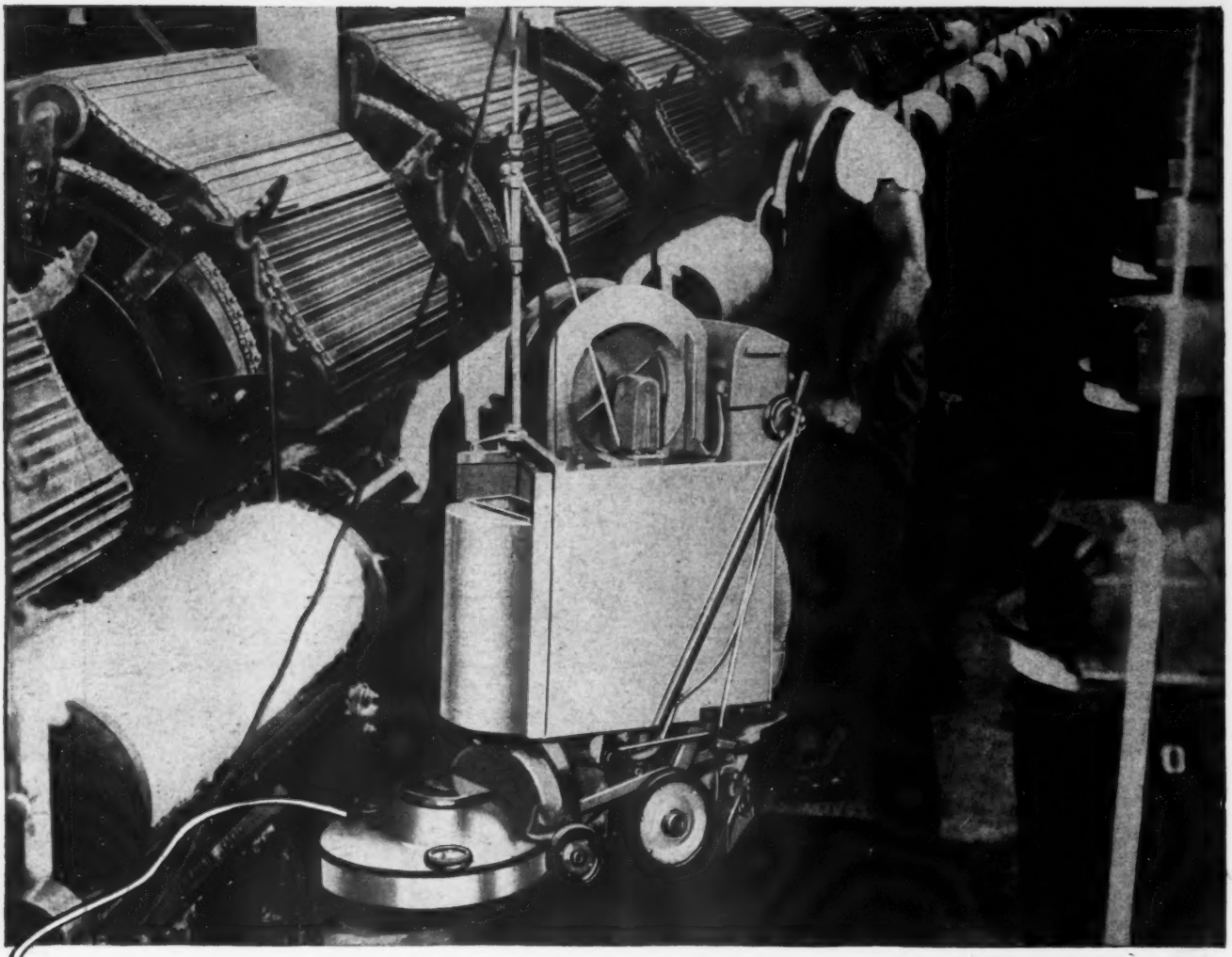

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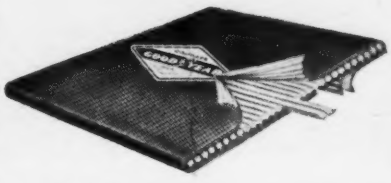

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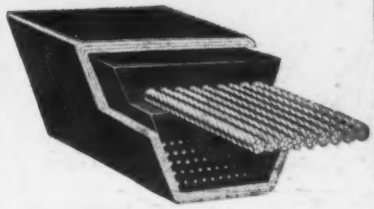

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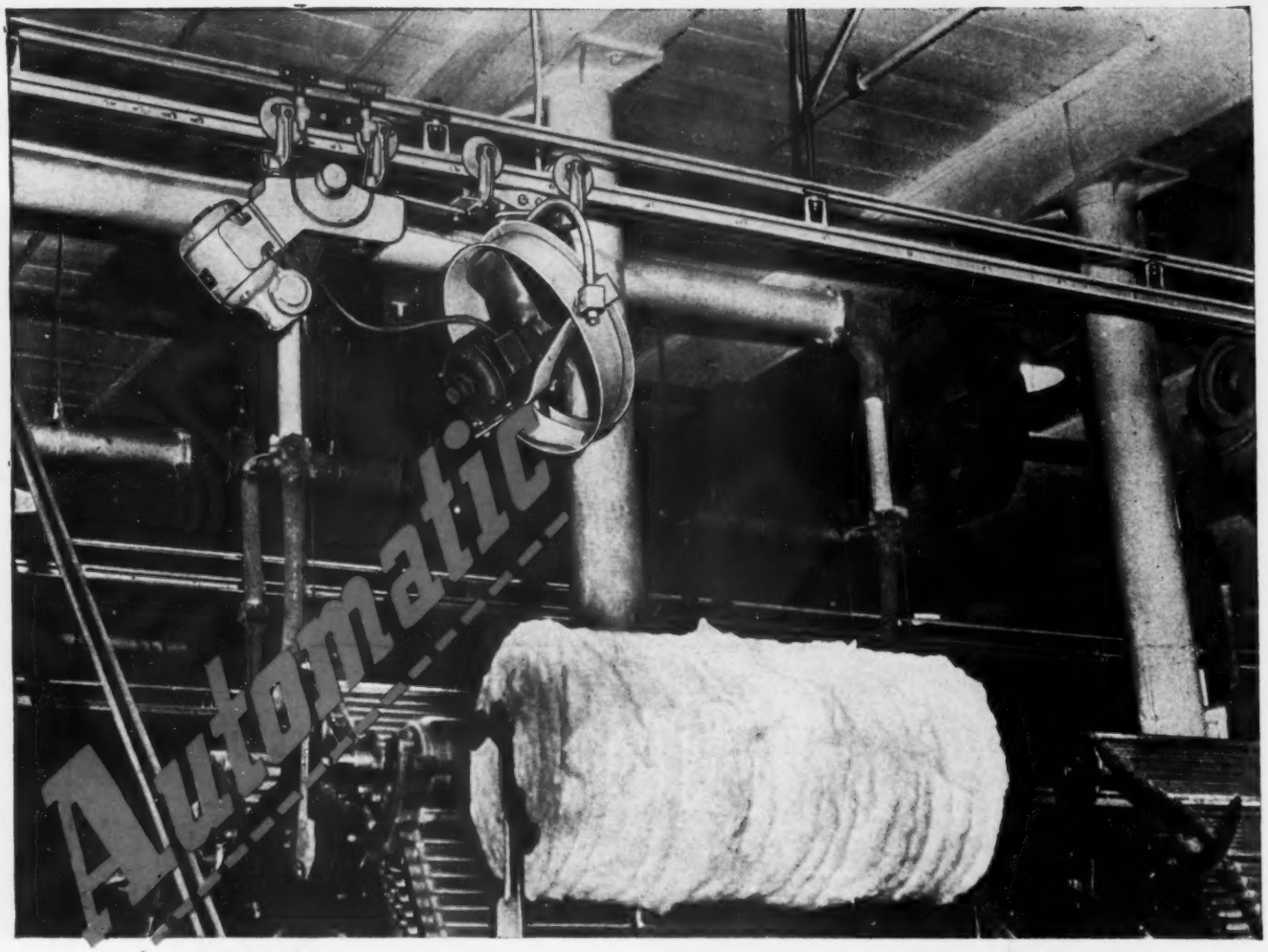

CLEANER ELIMINATES HAND CLEANING

In the card room illustrated above, lint was allowed to accumulate for three weeks. With 220 cards running 13 # per hour on low to medium 7/8" to 1" cotton, one can readily realize the accumulation after this period. In two complete cycles of the cleaner, operating at 100 feet per minute on 2300 feet of monorail track, the high velocity fan successfully removed all lint from pipes, belts, motors and other ceiling equipment so that ends could be put up and the cards started.

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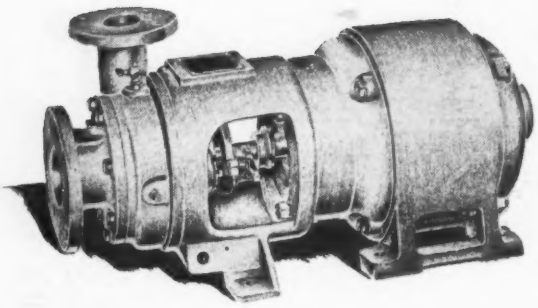
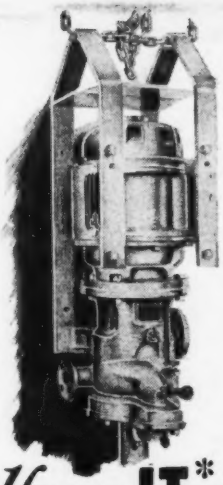
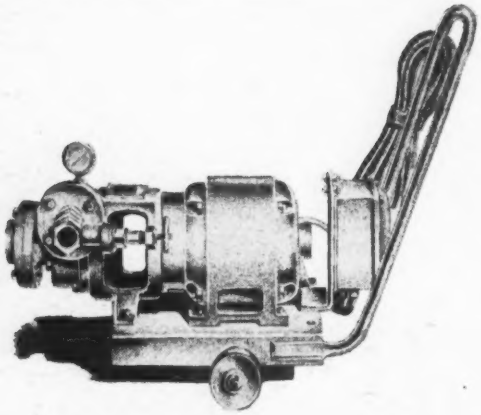


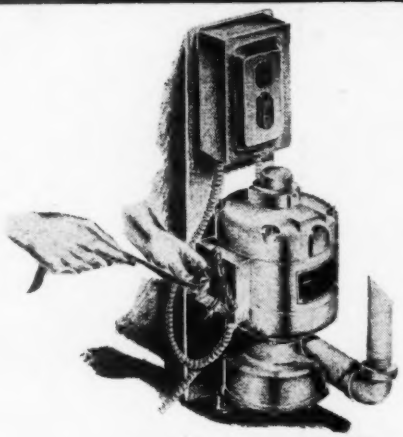
Set **IT*** *down*



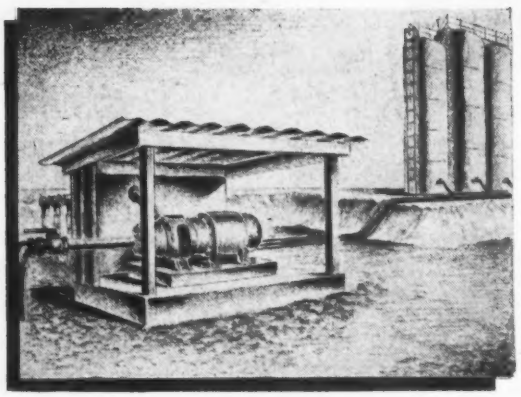
Hang **IT*** *up*



Push **IT*** *around*



Connect **IT***



Leave **IT*** *alone*

*** IT is the MOTORPUMP**

the rugged utility unit that works in any position, is at home in any industry, and takes punishment like a seasoned trouper.

➡ Sizes: ½ to 50 hp; 5 to 1800 gpm; 5 to 600 ft head; . . . . Materials to suit your conditions

Ask our nearest branch for Form 7093, the Motorpump Catalog.

It's an eye-opener on pump versatility.

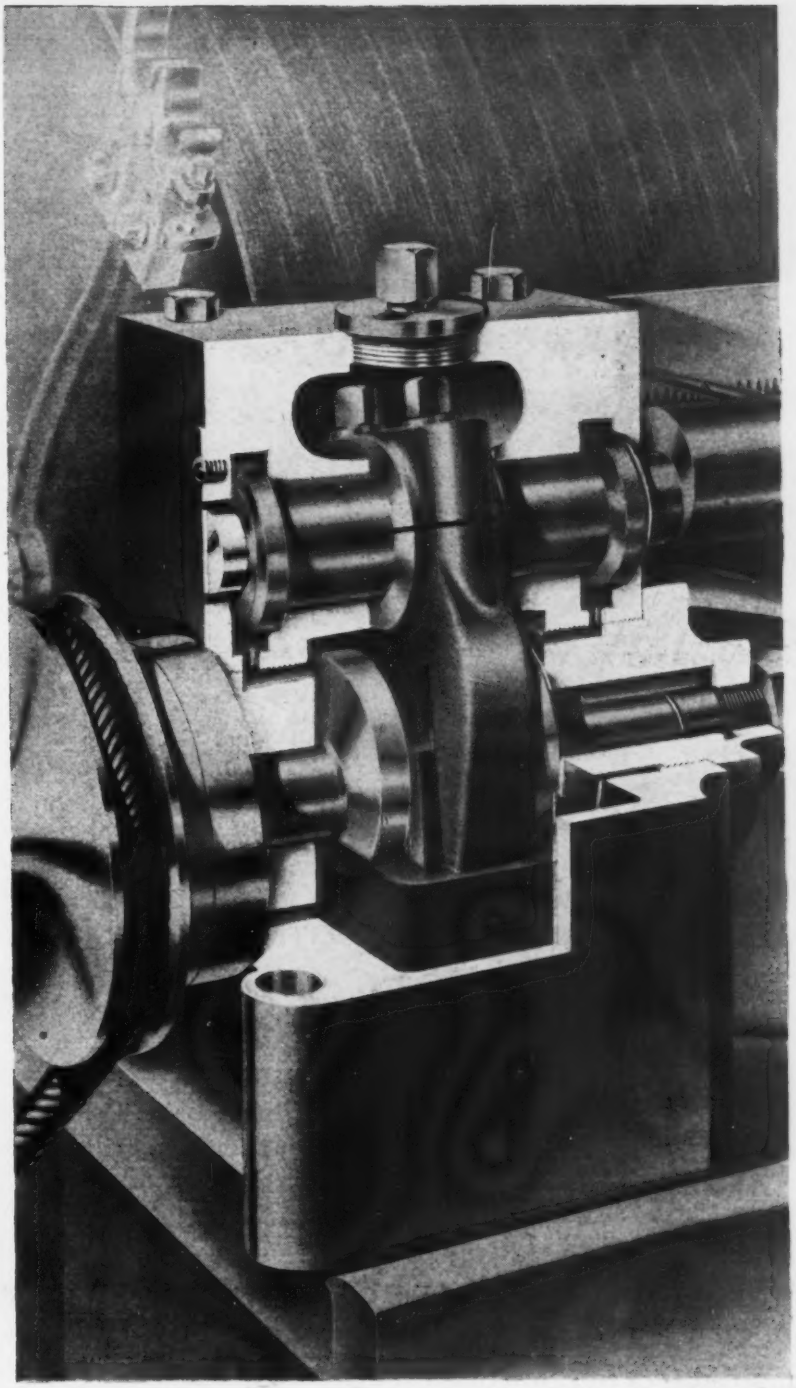
Ingersoll-Rand

Cameron Pump Division 9-933

11 Broadway, New York 4, N. Y.

Inside Knowledge
on Lubrication Problems
—SHOCK LOADS—
This is One of a Series of Messages
on Common Problems in Your Plant

One Shock after Another!



HUNDREDS OF TIMES a minute, the thin oil films on the rapidly oscillating mechanism of this comb box must take a battering like so many hammer blows. If the oil film breaks, metal-to-metal contact takes place. Friction, heat and wear are the results.

It takes an unusually tough oil to stand this kind of shock treatment. But here, as with every other lubricating problem in textile machinery, Socony-Vacuum provides the answer.

Gargoyle Vactra Oil has a remarkable attraction for metal. It forms persistent films that spread and cling tenaciously on all moving surfaces...resist rupture under continuous pounding. Equally important, it does not tend to thicken, nor to form deposits that may clog small oil passages. Protective lubrication is maintained at all times.

Get this better oil in your comb boxes now!

SOCONY-VACUUM OIL CO., INC.
and Affiliates: Magnolia Petroleum Co.
General Petroleum Corporation

GARGOYLE Lubricants

SOCONY-VACUUM

TUNE IN THE MOBILGAS PROGRAM — MONDAY EVENINGS, 9:30 E.S.T. — NBC

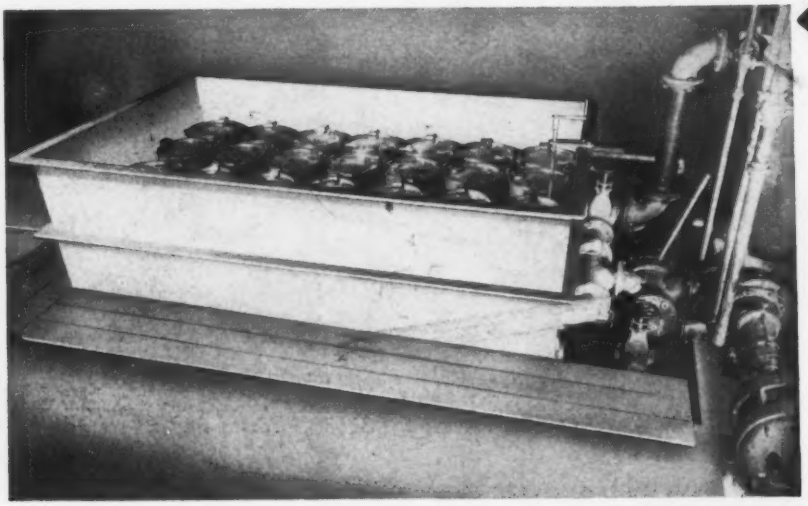
Socony-Vacuum Correct Lubrication

FOR EVERY MACHINE... EVERY OPERATING CONDITION

Obermaier ◀ LOOK FOR THESE MARKS ▶ **Stienen**

Reg. U.S. Pat. Office — Reg. Trade Mark

THESE NEW WORSTED TOP DYEING MACHINES IMPROVE QUALITY AND PRODUCTION

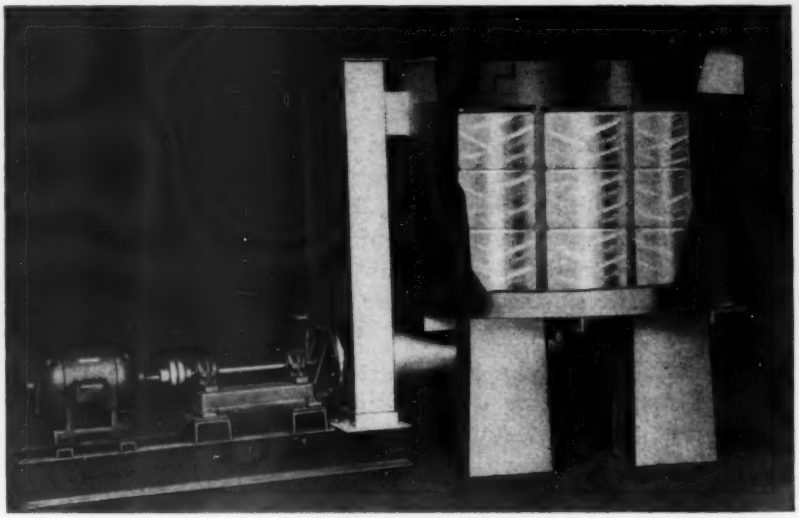


WORSTED TOP DYEING MACHINE

In this new machine each worsted top of 15 to 18 pounds is individually dyed, thus assuring maximum fiber protection. A connected vacuum station extracts moisture from the dyed top, without the tops being removed from their individual pots. All stainless steel construction.

ALSO THE LATEST SPINDLE SYSTEM WORSTED TOP DYEING MACHINE MODEL RAPR

All Stainless Steel Construction, especially designed for dyeing worsted tops by spindle system. Processes tops of different dimensions or uniform dimensions at the same time, giving thorough penetration in either case.



WORSTED TOP DYEING MACHINE—SPINDLE SYSTEM, MODEL RAPR

Standard Fabricators

INCORPORATED

355 WALTON AVENUE ● NEW YORK 51, N. Y.

BUILDERS OF

Cotton and Wool Dyeing Machines — for beams — Package — Raw Stock — Skeins — Rayon Cakes — Dye Spindles — Perforated Tubes — Centrifugal Pumps — Extractors and Dryers.

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Associated
Textile Engineers
43 Forbes Street
Fort, Bombay, India

SANDOZ PRESENTS *The color achievement of the month*

Windblown Ivory BY BOTANY

A dress that quickens the imagination . . . a fabric that promises year-'round assurance of style-rightness . . . a color that brings beauty to any setting. Here is a dress with confident charm . . . in "Botany" Brand Flannel.

Such delicate colors as this ivory tone call for scrupulous attention in dyeing, and the use of dyes that are sure-handling and steadfast. Sandoz Chemical Works is proud that Botany Worsted Mills — famous for quality products — finds, in Sandoz colors, the dependability it insists upon.

At Sandoz, these two objectives — dyes that will give the manufacturer full efficiency in handling, dyes that will give the ultimate user the satisfaction of long-lasting beauty — direct the efforts of our research department. Prominent among Sandoz developments are ALIZARINE LIGHT BLUE 4GL, proven by mill use to be the outstanding Acid Blue for perfect level dyeing results and excellent fastness to light . . . and AZO RUBINOLE 3GP, XYLENE FAST YELLOW 2GP, ALIZARINE LIGHT VIOLET 2RC, which with ALIZARINE LIGHT BLUE 4GL, give improved resistance to water spotting and perspiration.

For acid, chrome or direct dyes . . . or auxiliary chemicals . . . for both natural and synthetic fibres . . . be guided by the successful "color achievements" you have been seeing in these Sandoz advertisements.

Sandoz application laboratories are located in New York, Boston, Philadelphia, Charlotte, Los Angeles, and Toronto, where stocks are carried. Other branches are in Chicago, Paterson and Providence.

SANDOZ CHEMICAL WORKS, INC., 61 VAN DAM STREET, NEW YORK 13, N.Y.

SANDOZ *thinks ahead with textiles*

SANDOZ

Assuring High Speeds for Effective Drying

As the drying effect of an extractor is increased as the square of the speed of the basket, the *most* drying in the *least* time can be achieved only by the highest speeds. And the right answer to the problem of obtaining *maximum drying* in a *minimum of time* is a High Speed "Whirlwind" Extractor. In this machine, a rugged 48″ basket, operating at speeds up to 1000 r.p.m. and having a total capacity of 21 cubic feet, is supported by SKF Ball Bearings. These bearings permit the high speeds required for effective drying . . . almost effortless performance . . . on-time production schedules . . . low maintenance costs. In the Textile Industry, the dependable machines are usually SKF-equipped. 6226

SKF INDUSTRIES, INC.
Front St. & Erie Ave., Phila. 32, Pa.

SKF

BALL AND ROLLER BEARINGS

AHCO 1219

An Ethyl Cellulose emulsion . . . 19% solids . . . starch extender . . . finishing agent which gives considerable body, but without stiffness, and a full leathery hand as a self-finish or in conjunction with starches or gums.

AHCO 1225

An Acrylic Resin emulsion . . . 25% solids . . . starch extender . . . finishing agent similar to AHCO 1219 but more body pound for pound, and greater wash resistance . . . no loss in AATCC No. 3 test . . . combines with AHCO 1219 for economy.

AHCO *Resin Finishes*

CELLULOSE AND RESIN EMULSIONS —STARCH EXTENDERS AND BINDERS

A — All of these products can be dried at normal operating temperatures.

H — All of these products can be run in cold water solutions.

C — When used in mixtures where heat is applied, add these resins first.

O — All these products are compatible with our Ahcovels* E, F & R.

AHCO 1243

An Alkyd Resin emulsion . . . 20% solids . . . starch extender . . . excellent binder . . . water and wash resistant in finishes . . . imparts greater abrasion resistance and tensile strength to finishes . . . recommended in pure finishes where starch saving is important.

AHCO 1250

A Vinylite Resin emulsion . . . 50% solids . . . starch extender . . . pound for pound gives greatest stiffness of products described here . . . recommended as finishing agent for cotton, nylon, and rayon . . . high solids content makes this product economical to use . . . excellent binder and good wash resistance qualities.

*Trademark Reg. Patented

ARNOLD HOFFMAN & CO., INC.

MANUFACTURING CHEMISTS

ESTABLISHED 1815 • PLANTS AT DIGHTON, MASS. & CHARLOTTE, N. C.

PROVIDENCE, RHODE ISLAND

NEW YORK • BOSTON • PHILADELPHIA • CHARLOTTE

The automatic stop motion in the *new* Atwood Ring Twister spots the yarn break, stops the spindle and lets you correct faulty yarn with minimum production interruption.

HERE'S WHAT HAPPENS:

The instant one end, or the plied yarn, breaks, both the spindle and the feed roll automatically stop. But only that single spindle is stopped; the rest keep right on producing. This stop motion design safeguards and improves production in five ways:

1. Eliminates yarn with a ply missing
2. Permits tying of knots in single ends of yarn
3. Minimizes production interruptions
4. Eliminates roller laps
5. Reduces dirty yarn and waste to a minimum

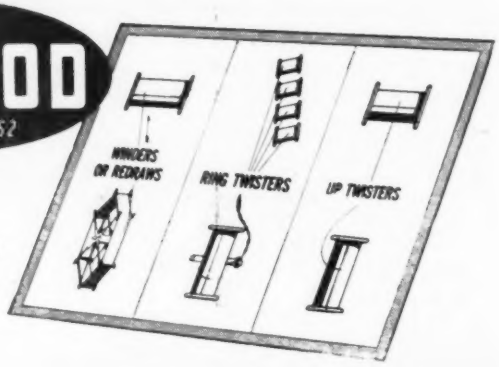
Other efficiency-improving features you will find in the *new* Atwood Ring Twister include: A single endless belt which provides smooth, constant spindle speed; a lifter motion that operates in a vertical line, giving smooth, uniform movement of the ring rail; spindles designed for high speeds; individual feed rolls designed for simple and easy threading; full-length spindle separators; compact design and minimum power requirements

Write for complete details of this newest development in ring twisters. Bulletins on Atwood Up-Twisters and Redraws also available on request. AD-14

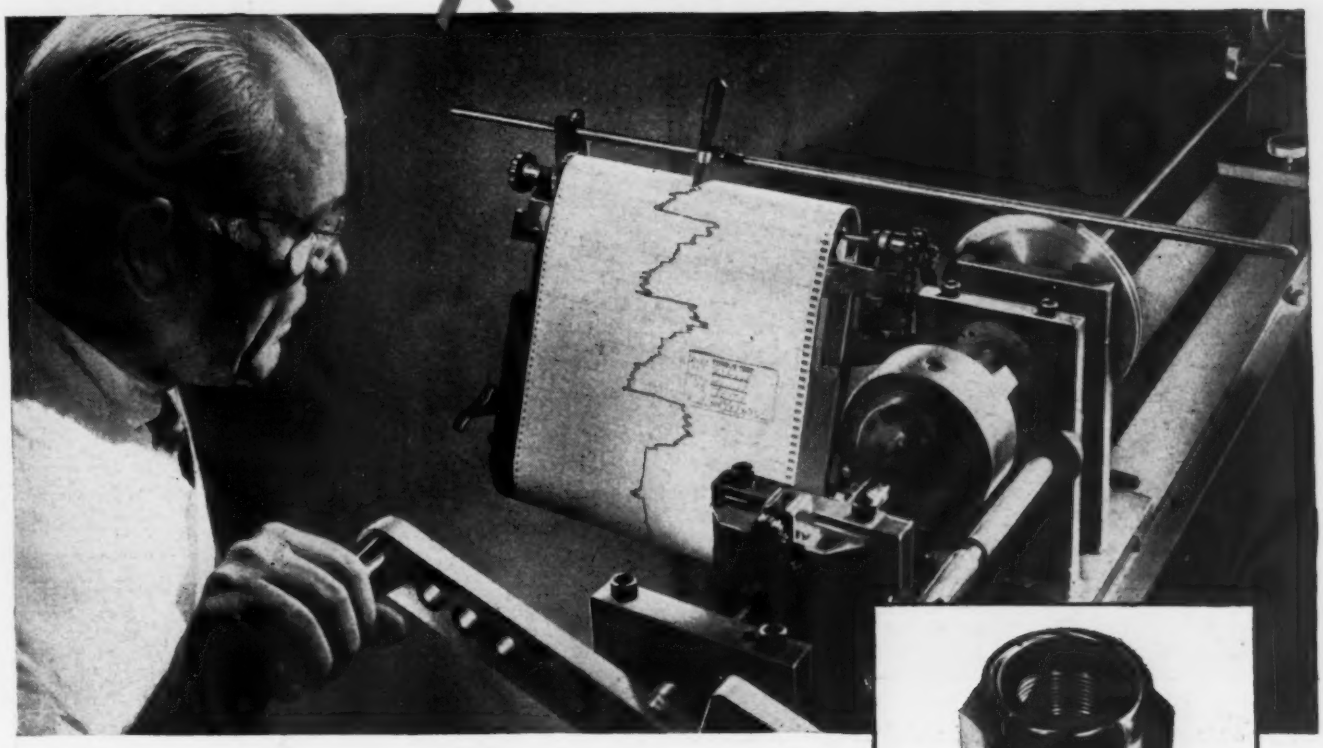
ATWOOD DIVISION
FARREL-BIRMINGHAM COMPANY, INC.
STONINGTON, CONNECTICUT, U.S.A.

ATWOOD
SINCE 1852

What's new in yarn machinery!



A-N TORQUE TESTS *Prove Reusability* OF ELASTIC STOP NUTS



—*the Red Elastic Collar provides dependable locking torque for* RE-USE!

Army and Navy specifications for aircraft lock nuts include a specific torque test to prove locking effectiveness. Lock nuts have to maintain adequate locking torque through 15 on-and-off cycles.

ESNA Elastic Stop Nuts—with the Red Elastic Collar that has become a symbol of security to all aviation engineers—remain self-locking against Vibration, Impact and Stress Reversal in both pre-stressed and positioned settings.

In addition, the self-locking, self-sealing and reusable Red Elastic Collar protects the bolt. It does not deform the bolt, damage the threads or gall the finish.

Reusable ESNA Elastic Stop Nuts provide dependable protection against Vibration, Thread Corrosion, Thread Failure, and Liquid Seepage. This multiple protection—which has made Elastic Stop Nuts the standard fastener on many products—also achieves the double economy of inventory simplification and reduced procurement costs. ESNA engineers are now ready to study your fastener problems. Address: Elastic Stop Nut Corporation of America, Union, New Jersey. Sales Engineers and Distributors are conveniently located in many principal cities.

The RED ELASTIC COLLAR

—denoting an ESNA product—

. . . is threadless and dependably elastic. Every bolt—*regardless of commercial tolerances*—impresses (does not cut) its full thread contact in the Red Elastic Collar to fully grip the bolt threads. In addition, this threading action properly seats the metal threads—and eliminates all axial play between bolt and nut threads.

Torque tests—for Elastic Stop Nuts—are based on a steel-to-steel frictional coefficient of .18. Bolt loadings are figured at 40,000 psi for commercial bolts; 90,000 psi for aircraft bolts.

ELASTIC STOP NUTS

PRODUCTS OF: ELASTIC STOP NUT CORPORATION OF AMERICA

Here's why UNIFORM THICKNESS OF STAINLESS CLADDING *is assured*

Hot rolling Lukens Stainless-Clad Steel on the 206" Mill, world's largest plate mill. In this operation, the stainless steel and the backing plate are permanently and uniformly bonded.

This picture shows a solid stainless steel insert being placed on a carbon steel backing plate – one of the assembly steps, preparatory to hot rolling, in the production of Lukens Stainless-Clad Steels. The thickness of each component has been pre-determined to assure the required uniform percentage of cladding to total plate thickness in the finished clad steel plate.

Precision assembly and the high, uniform rolling pressure, employed to reduce and bond the components, give positive control over the uniformity of cladding thickness. There's no guesswork about it!

Lukens Stainless-Clad Steels are usually furnished in 10% or 20% clad, but percentages from 5% to 50% can be produced.

Any standard specification stainless, including types 410, 430, 304, 316, 347 and others, can be supplied in plates from 3/16" to over 3" thick, or up to 162" wide; also in formed heads in all styles and sizes to over 18' in diameter.

Beginning with Nickel-Clad Steel 17 years ago, Lukens now manufactures a complete line of clad steels produced by the same process. Each of these clad steels offers the corrosion resistance and product protection of the solid metal at substantial savings in cost.

★

Additional information on Lukens Stainless-Clad Steels is offered in the new Bulletin 338; on Lukens Nickel-Clad, Inconel-Clad and Monel-Clad Steels in Bulletin 255. Copies of these Bulletins will be sent on request.

★

LUKENS
Nickel-Clad Stainless-Clad
Inconel-Clad Monel-Clad
STEELS
★

LUKENS STEEL COMPANY
World's Largest Plate Mill
376 Lukens Building ★ Coatesville, Pa.
Cable Address: Lukens

It looks easy, but—

. . . you know the many things that can happen before the ball rolls into the cup. As in finishing and dyeing, it's the unknown factors that cause trouble.

That's why bleachers and dyers choose Diastafor brand de-sizing agents, developed especially to work well under greatly varying conditions. They know Diastafor keeps you "out of the rough" when you have a difficult finishing problem.

Maybe you've had de-sizing jobs that *looked easy* . . . and then some unforeseen factor turned the job into a "problem lot." Experiences like this have taught bleachers and dyers the value of an all-purpose de-sizing agent such as Diastafor—Type L.

Diastafor—Type L can be used safely and efficiently in a wide range of temperatures; it will work well in a wide pH range. You know how helpful this wide range of use can be when no two lots are alike and when you have variables in water and formulas to consider.

You get uniformly good results with Diastafor—whether you are working with cottons, rayons or mixed goods. You can count on superb performance and fine finish—even on the most difficult lots. Tends to prevent uneven or streaky dyeing—no impairment of tensile strength. And you get more enzymes per penny with Diastafor—Type L.

Diastafor's ease of use—its quick, economical operation—have made it the most popular de-sizing agent for 39 years. Try it and see for yourself the results it gives you. If you need help on a de-sizing problem, our sales and technical staffs are always glad to assist you. Simply write to Strong Cobb Division of STANDARD BRANDS INCORPORATED, *Diastafor Department,* 595 Madison Avenue, New York 22, New York.

DIASTAFOR

A TRADE MARK OF STANDARD BRANDS INCORPORATED

ACCOTEX COTS *draft*

8 ADVANTAGES OF ACCOTEX COTS

1. **LONG SERVICE**—Accotex Cots are tough. And they can be rebuffed 5 or 6 times.

2. **GOOD DRAFTING** — Accotex Cots retain their excellent grip, because their cork-and-rubber composition resists slicking.

3. **REDUCED EYEBROWING** — The resistance to slicking minimizes eyebrowing.

4. **REDUCED LAPPING** — Accotex Cots have little affinity for textile fibers and are non-sweating even in humid weather.

5. **GOOD START-UP**—Accotex Cots are non-thermoplastic and resist flattening.

6. **SOLVENT RESISTANCE** — Accotex Cots are not affected by oil, water, dyes, or commonly used textile solvents.

7. **SEAMLESS CONSTRUCTION** — Accotex Cots have no seams, no structural weaknesses to cause failure in service.

8. **QUICK ASSEMBLY** — Accotex Cots are ready glued for easier, quicker assembly.

ARMSTRONG'S ACCOTEX COTS

better...produce stronger yarn

because they resist slicking

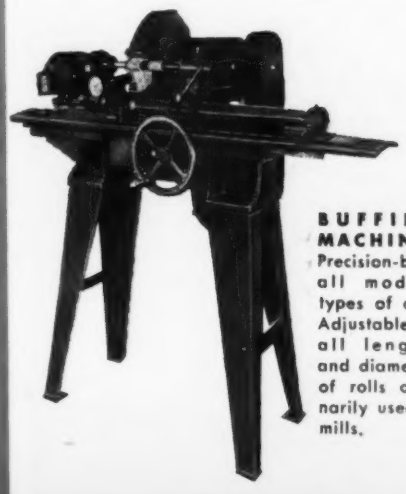
You get less slippage with Armstrong's Accotex Cots than with any other synthetic covering. That's because Accotex is scientifically formulated from synthetic rubber *and* cork. The high friction cork in Accotex Cots helps grip the fiber more evenly and retards slicking. This long-lasting grip results in better drafting and stronger yarn.

These are but a few of the important reasons why more and more mills are switching to Armstrong's Accotex Cots. Check all the advantages shown at left . . . and you'll see why Accotex Cots are now serving more spindles than any other roll covering.

Install these superior cots on a test frame today. Ask your Armstrong representative for samples, prices, and complete information on Accotex Cots. Or write today to Armstrong Cork Company, Textile Products Department, 8303 Arch Street, Lancaster, Pennsylvania.

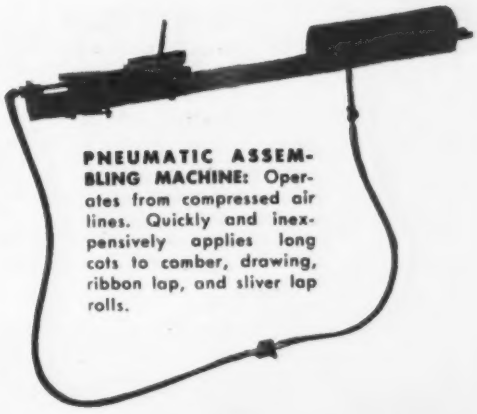
ROLL COVERING SERVICE THAT'S COMPLETE

You can get everything you need for complete roll covering service from your Armstrong representative. He can supply not only all three modern types of covers but also the roll shop equipment required to apply and service them.

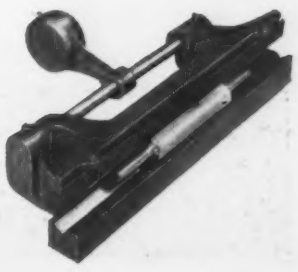


BUFFING MACHINE: Precision-buffs all modern types of cots. Adjustable for all lengths and diameters of rolls ordinarily used in mills.

ASSEMBLING MACHINE: Hand-operated. Facilitates accurate speed assembly of ready-glued cork or synthetic cots to spinning and card room rolls. Handles cots up to 4½" long.



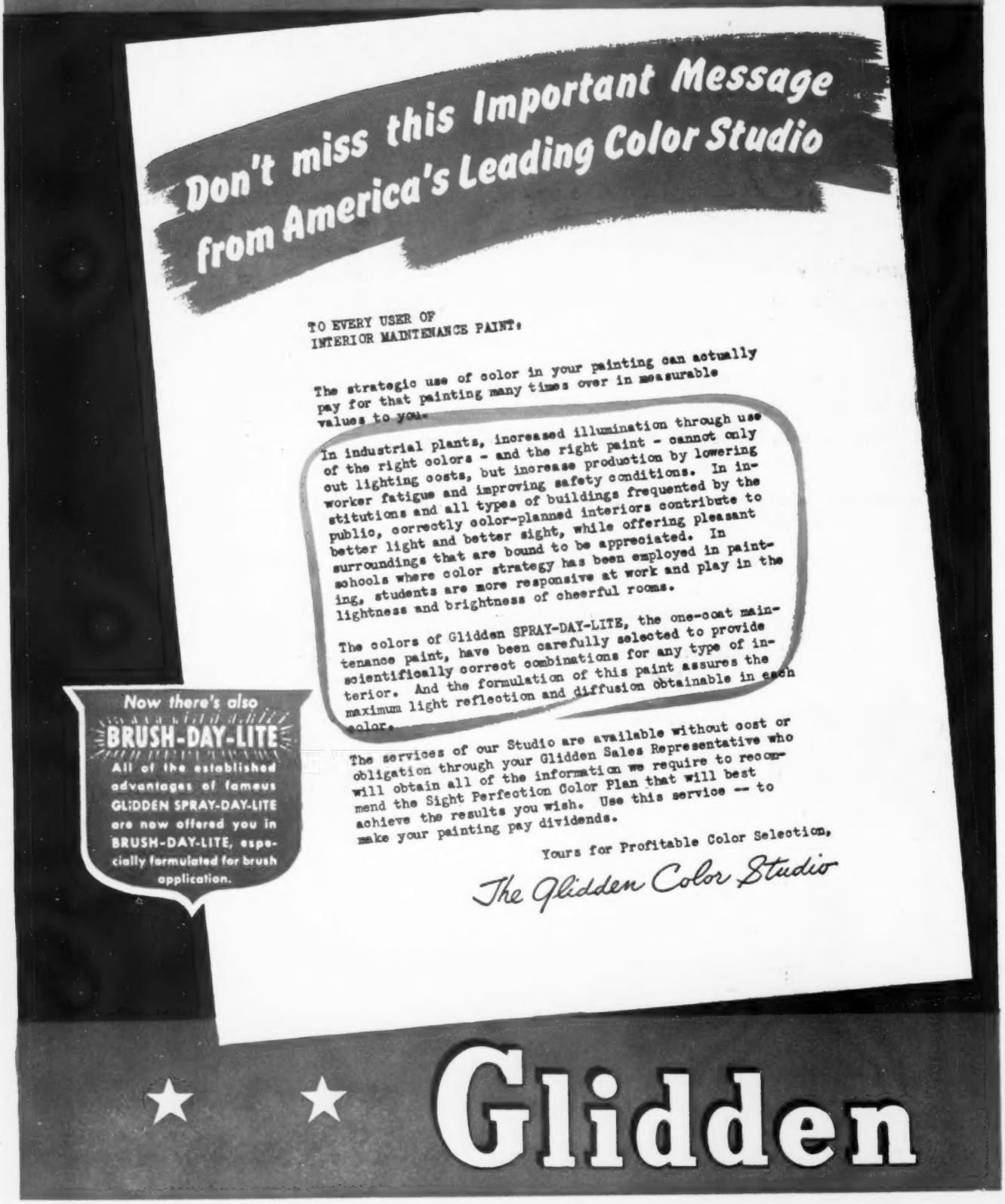
PNEUMATIC ASSEMBLING MACHINE: Operates from compressed air lines. Quickly and inexpensively applies long cots to comber, drawing, ribbon lap, and sliver lap rolls.



ROLL TESTING GAUGE: A paralleling device used to guide the setting of the buffing machine and to check trueness of rolls after buffing.

CORK COTS
ACCOTEX APRONS
ROLL SHOP EQUIPMENT

How to show your colors profitably through one-coat painting with . . .


Don't miss this Important Message from America's Leading Color Studio
TO EVERY USER OF
INTERIOR MAINTENANCE PAINT:
The strategic use of color in your painting can actually pay for that painting many times over in measurable values to you.
In industrial plants, increased illumination through use of the right colors - and the right paint - cannot only cut lighting costs, but increase production by lowering worker fatigue and improving safety conditions. In institutions and all types of buildings frequented by the public, correctly color-planned interiors contribute to better light and better sight, while offering pleasant surroundings that are bound to be appreciated. In schools where color strategy has been employed in painting, students are more responsive at work and play in the lightness and brightness of cheerful rooms.
The colors of Glidden SPRAY-DAY-LITE, the one-coat maintenance paint, have been carefully selected to provide scientifically correct combinations for any type of interior. And the formulation of this paint assures the maximum light reflection and diffusion obtainable in each color.
The services of our Studio are available without cost or obligation through your Glidden Sales Representative who will obtain all of the information we require to recommend the Sight Perfection Color Plan that will best achieve the results you wish. Use this service -- to make your painting pay dividends.
Yours for Profitable Color Selection,
The Glidden Color Studio
Now there's also
BRUSH-DAY-LITE
All of the established advantages of fameus GLIDDEN SPRAY-DAY-LITE are now offered you in BRUSH-DAY-LITE, especially formulated for brush application.
★ ★ Glidden

SPRAY-DAY-LITE

Glidden offers you

THE RIGHT COLORS
in **THE RIGHT PAINT!**

Specify* SPRAY-DAY-LITE *for all these reasons . . .

1. Ten attractive colors, carefully selected to provide combinations scientifically correct for every interior.

2. Increases lighting efficiency by giving *maximum* light reflection and diffusion.

3. Durable, egg-shell finish eliminates eye-straining glare—washes like tile.

4. Gives conventional two-coat results in only one coat over almost any kind of interior surface.

5. Sprayed or brushed, does not sag or run; produces little fog or mist when sprayed.

MAIL THIS COUPON *Today!*

FREE! **A practical guide to "Sight Perfection" in factories by Glidden Color Authorities**

Tells and shows how to follow scientific, E-Z-C Color Planning in painting interiors and machines to ease eye-strain, boost production, reduce accidents. Send coupon for it today. If you don't find all the guidance you need in this book, the Glidden Color Studio will design color plans tailored to your particular needs—without charge.

TIME-TESTED

THE GLIDDEN COMPANY
Dep't. T-3, 11001 Madison Ave., Cleveland 2, Ohio

☐ You may send your SPRAY-DAY-LITE Color Chart showing the 10 attractive shades and suggested color combinations.

☐ You may send your free book on the scientific use of color in industrial plants, "Sight Perfection."

☐ You may have your representative call and demonstrate SPRAY-DAY-LITE in our premises without obligation on our part.

NAME_____

COMPANY_____ TITLE_____

ADDRESS_____

CITY & STATE_____

Pacemaker in Paints

Fine Fabric RIDES A FERRIS WHEEL ...TO GET A FINISHING TOUCH

A playground ride like this is serious business in the textile industry. Speedy finished processing of coated and calendered fabric is a real problem . . . fabric must be handled with particular care, drying speeds matched exactly with top handling speeds. It's a job for specialists in the use of heat in continuous operations . . . so the problem was turned over to IOI.

Result: IOI engineers designed a complete system—including dip tanks and excess material removal units—with its chief feature the mammoth dryer wheel shown above. A three-ton giant with a baby's touch, it is so delicately balanced and is so closely controlled—electronically—that the finest and thinnest materials ride over it without danger of marking or breakage . . . at unprecedented speeds.

This system is typical of IOI's engineering versatility in applying its sound basic principle to the industrial processing of monofilament and web materials . . . *putting heat to work in continuous operations.*

Complete details of IOI installations adaptable to your industry are available in booklet form. Copies will be sent upon request.

INDUSTRIAL OVENS, INC.

IOI ENGINEERING VERSATILITY

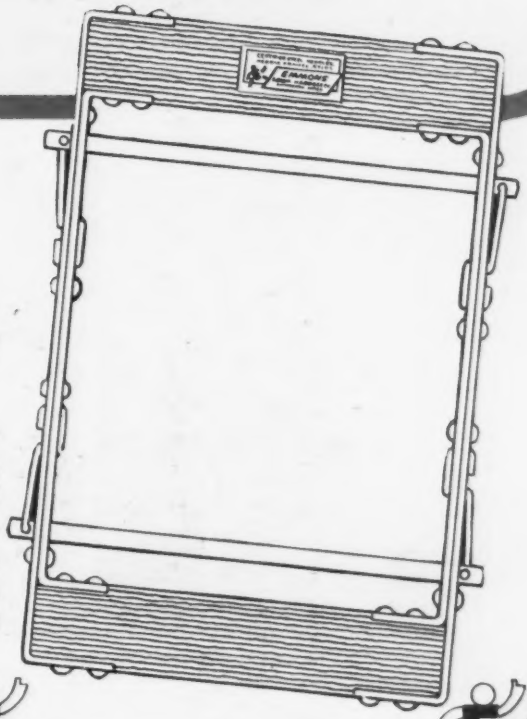
13825 TRISKETT ROAD CLEVELAND 11, OHIO

ASSOCIATED COMPANY: JAMES DAY MACHINERY LTD., LONDON W 1, ENGLAND

EMMONS SUPERIOR HEDDLE FRAMES

ARE 3 WAYS BETTER

In Design!
In Materials!
In Construction!



The famous Emmons E-Man presents—Three standard EMMONS Heddle Frames designed and made for every standard loom. Special frames of all types will be made to suit your needs. In addition to the double iron end type illustrated here Emmons regularly manufactures single iron and combination end frames. All three may be equipped with continuous slide hooks.

INTERNATIONAL "E" MEN
at Your Service

ARGENTINA
STORER & CIA.
Chacabuco 443-49, Buenos Aires

BRAZIL
A. POLAK
216 Av. Beira Mar
Salas 403 a-d, Edificio Magnus,
Rio de Janeiro and Rua Florencio
Abreu 157, Edificio Sao Bento
Salas 510 A. C., Sao Paulo

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Casilla 4075, Santiago

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CUBA
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Apartado 1611, Habana

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LEO LENK
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N. MARVEZ
Apartado 391, Caracas

URUGUAY
STORER & CIA
Paysandu 1202, Montevideo

DOMESTIC "E" MEN
at Your Service

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Main Office and Plant
EMMONS LOOM HARNESS CO.
P. O. Box 927
'Phone - 6194

CHARLOTTE
Branch Plant
GEORGE FIELD, *Manager*
P. O. Box 2036
'Phone - 3-7503

NEW YORK
W. S. TAYLOR
52 Vanderbilt Avenue
'Phone - Lexington 2-6060

ATLANTA
ARTHUR HARRIS
P. O. Box 1982
'Phone - Main 2543

CHICAGO
ALBERT R. BREEN
80 E. Jackson Boulevard
'Phone - Harrison 7140

DALLAS
R. D. HUGHES SALES CO.
1812 Main Street
'Phone - C-6283; C-6284

EMMONS PRODUCTS
Serving the Textile Industry

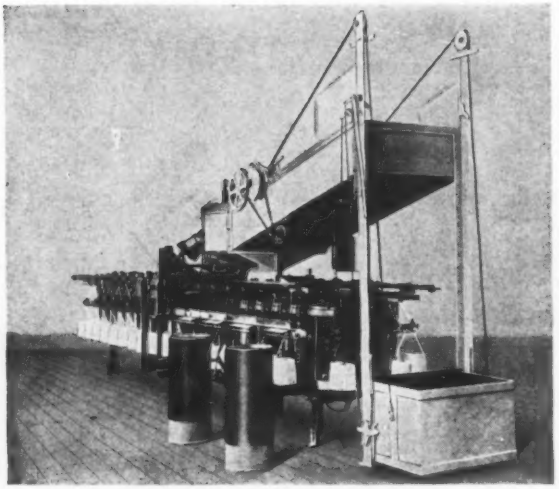
STEEL HEDDLES
HEDDLE FRAMES
COTTON HARNESS
REEDS
SELVAGE HARNESS
MAIL HARNESS
MENDING EYES & TWINE
JACQUARD HEDDLES
SLASHER & STRIKING COMBS
EMMONS LOOM STRAPPING
(Manufactured By B. F. Goodrich Co.)

EMMONS
WEAVE ROOM EQUIPMENT

ABBOTT MACHINE COMPANY

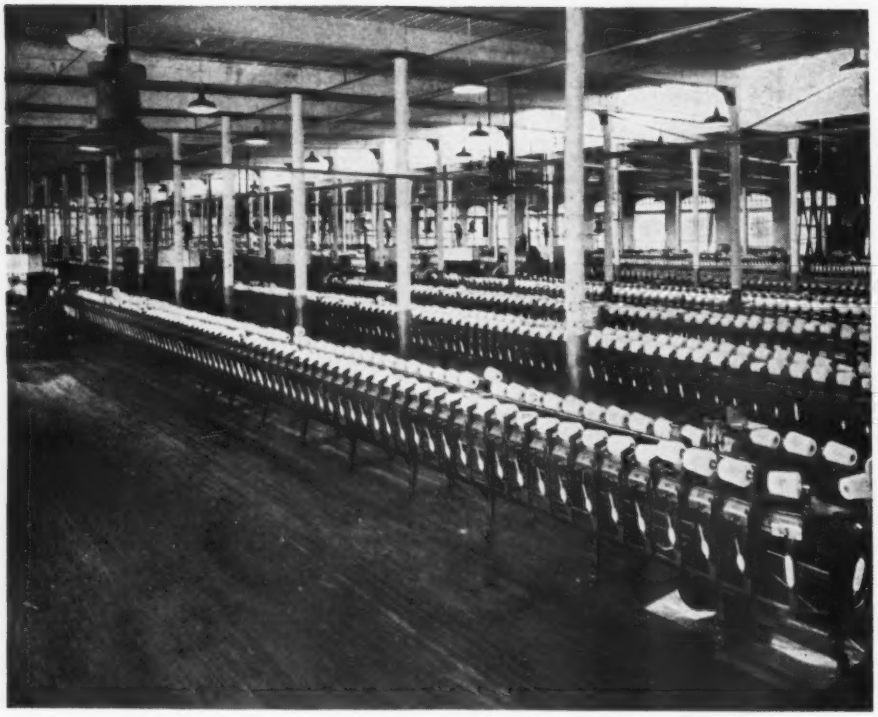
WILTON, N. H.

Southern Representative — L. S. Ligon, Greenville, S. C.



AUTOMATIC QUILLER

Travelling Spindles. Only one automatic head. Empty bobbins are dumped into large box on the floor, a lever is pushed which hoists the box up, dumps the bobbins, and returns to the floor automatically. Full bobbins discharge into cans or boxes. Minimum labor and investment cost. Production 2000 bobbins per hour per operator.



AUTOMATIC CONE OR TUBE WINDER

Travelling Spindles. 60 to 200 spindles with one operator.

Will wind
- Warping cones
- Twisting tubes
- Paper tubes
- Dye tubes
- Knitting cones

Production 900 to 1000 bobbins per hour per operator.

Investigate new method of spinning all yarn on large warp bobbins—wind and slub automatically onto four-pound cones — use cones in high-speed warping—also for rewinding on automatic quiller for filling.

Firestone Velon*

so easy to weave . . .

so easy to sell . . .

CLEAN SMOOTH THREAD

With Firestone ***Velon*** production is freed of lint and fuzz, which means no interruptions for cleaning, less damaging dust in your plant, and a smoother, cleaner-finished fabric. This new yarn has no rough surfaces, no "loose hairs"—it's neat as a pin.

Velon is easy to work as conventional yarns, which means smooth production. No special equipment or skill is required to make the wonderful fabrics that defy dirt, staining, shrinkage, fading, wear and age – and which sell so easily. Write Firestone, Akron, for details and technical assistance.

BEST TODAY... STILL BETTER TOMORROW

LISTEN TO THE VOICE OF FIRESTONE MONDAY EVENINGS OVER NBC

Velon*

THE FABRIC OF TOMORROW ON THE LOOMS OF TODAY

*TRADE MARK

Why HOME

(as told by a personnel director)

"See those men going out of the gate? Somewhere in the back of the mind of every one is the thought that HE might not be headed for home tonight—IF!

"You see, some of our operations are extremely dangerous. Our accident rate used to make me sick.

"It made the men down in the plant sick, too, every time we had a serious accident. They were scared all the time. And those accidents cost us plenty.

"Three years ago we placed our workmen's compensation with Employers Mutuals. They sent in their Safety Engineers —and those fellows do know their stuff. We thought we knew something about safety—but those engineers were way ahead of us.

"Today we've got a real Safety Program. Accidents just quit happening. It seemed almost like a miracle!

"If it hadn't been for that Safety Program, one hundred and sixty-three of those men going home to supper now would have been killed this year, or laid up in the hospital, or maybe crippled for life. Right here in this plant!

"They're pretty good guys, too."

For the benefit of policyholders . . .

Employers Mutuals have a long experience as one of the largest carriers of workmen's compensation (they wrote one of the first policies ever issued). Their constant effort to provide for the welfare of policyholders has given them unusual insight into the needs of employers and of their employees.

To serve those needs, they have developed Safety Engineering and other services, in order to reduce the number of accidents to employees, and to provide care for injured employees.

You can reduce your insurance costs

All these services are available to you, to reduce your accident frequency and accident severity, thereby reducing the cost of your insurance.

In addition, all savings made through sound, conservative management, over and above provision for ample reserves and surplus, are returned to policyholders in the form of dividends —a further reduction of your insurance costs.

Employers Mutuals write:

Public Liability . . . Automobile . . . Plate Glass . . . Burglary . . . Workmen's Compensation . . . Fidelity Bonds . . . Group Health, Accident, Hospitalization . . . and other casualty insurance . . . Fire . . . Tornado . . . Extended Coverage . . . Inland Marine . . . and allied lines of insurance. All policies are nonassessable. Branch offices in principal cities. Consult your telephone directory.

EMPLOYERS MUTUALS of WAUSAU

163 men WILL BE FOR SUPPER TONIGHT

This leader in Safety Engineering can reduce YOUR accident rates . . . and save you money, too

Employers Mutuals nationally known achievements in Safety Engineering result from the basic principle guiding these progressive companies—to operate for the benefit of the policyholders and their employees.

E-M Safety Engineers were first put to work because high accident rates made workmen's compensation insurance costs a burden to employers. And insurance costs are only the beginning of the price you pay for accidents.

Other costs include lost production, spoiled material and broken machinery, replacement of trained workers, lowered efficiency of others who see an accident—talk about it—are fearful of their own safety.

Get safety-on-the-job

E-M Safety Engineers have developed an efficiently planned and coordinated program that can build safety-on-the-job for you—from the ground up.

Engineers survey your plant to analyze the hazards surrounding your employees. Engineering specialists on various machines and industries, chemists, industrial nurses all play their part in such a survey. They make recommendations for eliminating these hazards.

Engineers help you set up a safety program. They provide practical suggestions, posters, literature, films, and other help. Safety education helps your men understand the fundamental principle of safety-on-the-job—that taking time to be safe saves time—and lives.

The Industrial Hygiene department and a staff of industrial nurses help eliminate the causes of occupational diseases. The Employers Mutual nurse will help you set up an efficient first aid department.

E-M Safety Engineering has reduced accident rates as much as 60% to 75%. Even in exceptionally hazardous industries, accidents can be brought under control.

Another service to policyholders and their employees is the effective use of modern physiotherapy laboratories when serious accidents *do* occur. Physiotherapy frequently reduces the time lost following a severe injury, and over and over again has prevented permanent disability.

Ask an Employers Mutuals man for an engineering survey of your plant and recommendations for the safety program you need to reduce your accident rates.

FREE: Write for complete information on Safety Engineering, and for a copy of "A Dictionary of Insurance Terms—How to Understand Insurance and Buy It Intelligently." Write on your business letterhead to: Insurance Information Bureau, Employers Mutuals of Wausau, Wausau, Wisconsin.

GET THIS E-M RISK ANALYSIS ON YOUR PUBLIC LIABILITY HAZARDS

Employers Mutuals engineers can show you, through a Survey and Risk Analysis, how to eliminate most of the hazards that might result in injury to members of the public on your premises or through the operations of your business.

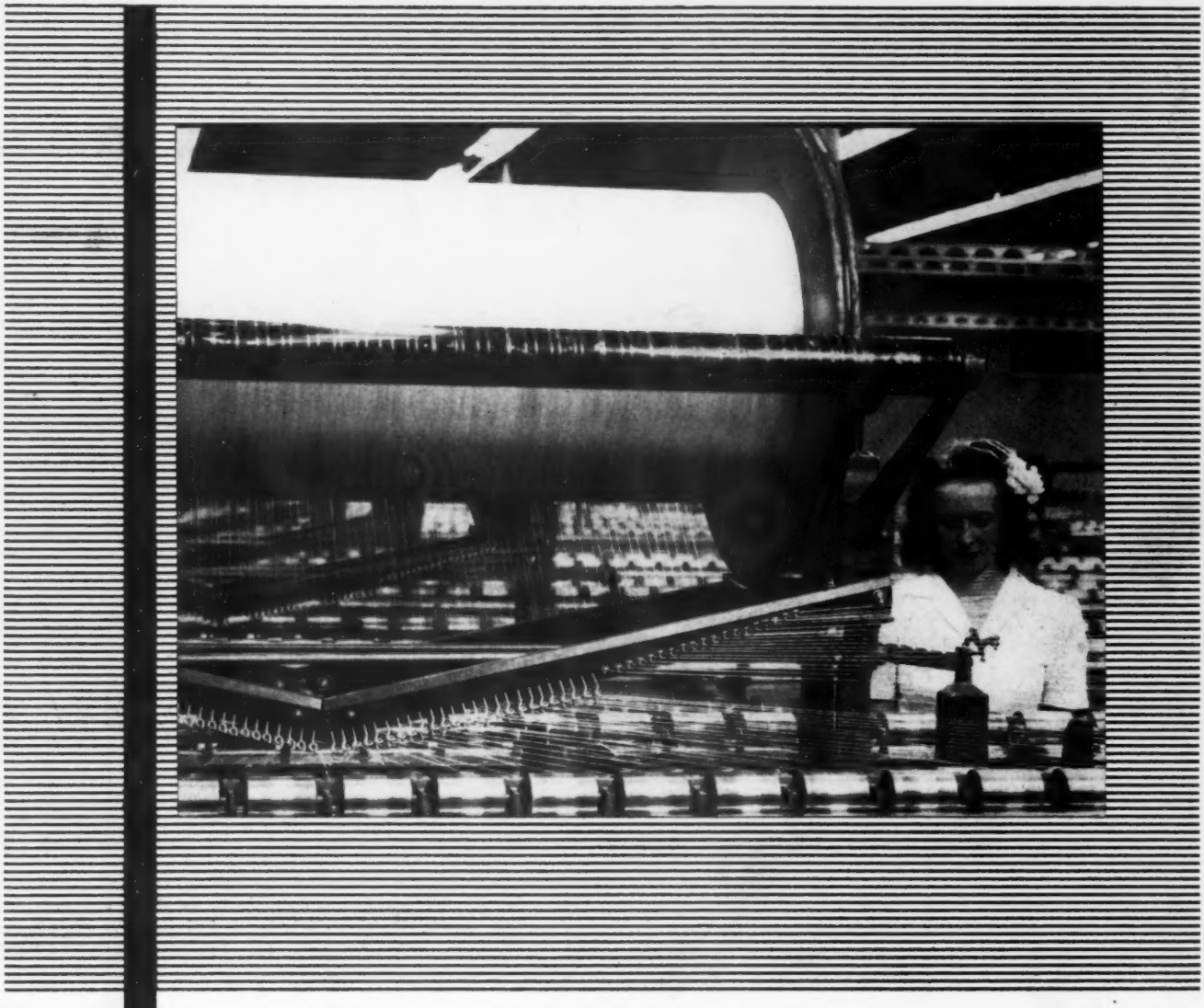
Employers Mutuals combine in one comprehensive policy the several forms of public liability protection needed by manufacturing, mercantile, and contracting firms—protection against claims arising from all the usual and all the unusual chances of loss through bodily injury and damage to property of others.

Only after a survey of the hazards can the proper form of this comprehensive policy be recommended. Then, Employers Mutuals tailor the policy to provide the coverage needed.

Ask the Employers Mutuals man to make a Survey and Risk Analysis of your public liability requirements. This analysis involves no obligation.

. . make Insurance Understandable

EMPLOYERS MUTUAL LIABILITY INSURANCE COMPANY OF WISCONSIN
ESTABLISHED 1911
EMPLOYERS MUTUAL FIRE INSURANCE COMPANY
ESTABLISHED 1935
Home Office: WAUSAU, WISCONSIN



production up, employee turnover down

Textile mills adding Carrier refrigeration to their air conditioning systems have been surprised by the increase in production. One of the big reasons, of course, is because of the greater efficiency of employees.

Workers in hot, sticky mill rooms tire fast. Lower vitality leads to needless mistakes . . . affecting the quality as well as the quantity of output. In time, worker discomfort boosts absenteeism and the rate of turnover. Money invested in employee training is lost, production costs rise.

Carrier year-round air conditioning —with control of temperature as well as humidity—helps keep employees on the job month after month. The completely air conditioned mill soon becomes known as a good place to work. The mill owner has a wider choice of employees.

Designing and building an economical, efficient air conditioning system for greatest employee efficiency take years of research and experience. Carrier engineers are the most experienced in the field. They have worked in close co-operation with textile men for more than 45 years . . . bringing the industry the latest and best in air conditioning. Carrier Corporation, Syracuse, New York.

Carrier

air conditioning

refrigeration

industrial heating

. . . Autumn leaves with beauty go

Without color, Autumn's pageant becomes just another landscape. Without color, textiles too would be dull lifeless goods. Add color . . . and they become dramatic merchandise . . . with endless profit possibilities.

National Aniline knows color . . . knows its formulation, manufacture and application . . . knows its effective use from the longest and broadest experience in every field where color is used.

For uniform and dependable results, always specify National Dyes.

National Aniline

DIVISION OF
ALLIED CHEMICAL & DYE CORPORATION
40 RECTOR STREET NEW YORK 6, N. Y.

BOSTON · PROVIDENCE · PHILADELPHIA · CHICAGO · SAN FRANCISCO · CHARLOTTE · GREENSBORO · ATLANTA · NEW ORLEANS · CHATTANOOGA · PORTLAND, ORE. · TORONTO

L. F. Dommerich & Company

Executive and General Offices

271 MADISON AVENUE
NEW YORK, N.Y.

Telephone: AShland 4-8650

FACTORS

For Manufacturers and Merchants

Inquiries as to our services solicited

●

ESTABLISHED 1840

NEW SERVICE SOLVES *STATIC PROBLEMS*

of wool cards

Announcement
The United States Radium Corporation, New York, maker of the IONOTRON Static Eliminator*, announces the appointment of the Davis & Furber Machine Company, North Andover, Massachusetts, as exclusive agent for applications on carding machinery and other machinery using woolen and worsted processes.

Properly applied, the IONOTRON is a solution to static problems in wool carding and other operations and permits faster production rates. With the IONOTRON, it is unnecessary to maintain extreme humidity conditions in order to suppress static.

The IONOTRON operates without a power source and has no moving parts. It acts by means of alpha rays, which continuously ionize the air in the critical zone where static charges tend to build up. There is no contact between the IONOTRON and fibers or fabric.

For further information on wool and worsted applications, write Davis & Furber Machine Co., North Andover, Mass.

For information about use of the IONOTRON in other textile operations where static is a problem, write directly to Dept. G6, U. S. Radium Corporation, 535 Pearl Street, New York 7, N. Y.

*Reg. U. S. Pat. Off.

U·S RADIUM

IONOTRON

Static ELIMINATOR

LOOK INTO THE "O" FILE FOR

2 Satisfying Answers

TO YOUR TEXTILE PROCESSING PROBLEMS

Soaps or synthetic cleaning agents? Which will be better suited to the type of materials you handle and to your particular operating conditions? Your own experience can best answer this question.

But whatever your preference may be, you'll get top performance from either Olate or Orvus in your wet finishing operations. And there's a good chance you'll find that both can be helpful in your mill.

Olate

A pure, neutral, low titer flake soap with a reputation of many years' standing as an efficient scouring and fulling agent.

Fast dissolving, fast rinsing.

Fluid solutions—wet out fibers quickly, evenly, thoroughly.

Excellent emulsifying and lubricating properties.

Gentle cleansing action.

Provides excellent protection against uneven shrinkage and non-uniform fulling . . . against harshness or stickiness.

Retains its efficiency at lower-than-average temperatures.

ORVUS*

A time-tested neutral synthetic detergent.

Fast, thorough wetting, emulsifying and scouring action.

Effective even in hard water. Helps guard against scum, streaks, specks and spots from hard water deposits.

Effective in presence of acids and alkalis.

Safe to fiber, fabric and color. Excellent results in scouring fugitive colors.

Promotes more uniform and thorough dyeing.

Helps prevent undesirable odor and yellowing of goods in storage.

O

Procter & Gamble

*ORVUS is a Procter & Gamble trade-mark.

Don't Lubricate until 1952

Says

Electric Machinery Mfg. Co. of Minneapolis, Minn., another user of Norma-Hoffmann's Patented "Cartridge" Bearings

The new "Regulectric" generators need no adjustments, no maintenance, no attention for years and one reason is—

. . . the bearings are sealed as effectively as are the components of the built-in regulating circuit.

Made to double-row width, these "Cartridge" Bearings have 100% more grease capacity than any other standard self-sealed type and they also permit added shaft strength and reduced overhang. Write for all the facts on Norma-Hoffmann's "Cartridge" Bearings.

NORMA-HOFFMANN
***Precision* BEARINGS**
BALL • ROLLER • THRUST

NORMA-HOFFMANN BEARINGS CORPORATION
STAMFORD, CONNECTICUT
FIELD OFFICES: New York, Chicago, Cleveland, Detroit, Pittsburgh, Cincinnati, Los Angeles, San Francisco, Seattle, Phoenix

HYCAR AMERICAN RUBBER LATEX...

a new material for impregnating and coating fabrics, fibres, and threads

HYCAR latex, when used as a coating or impregnant for even inexpensive materials, imparts many desirable properties not easily obtained with other coatings and impregnants.

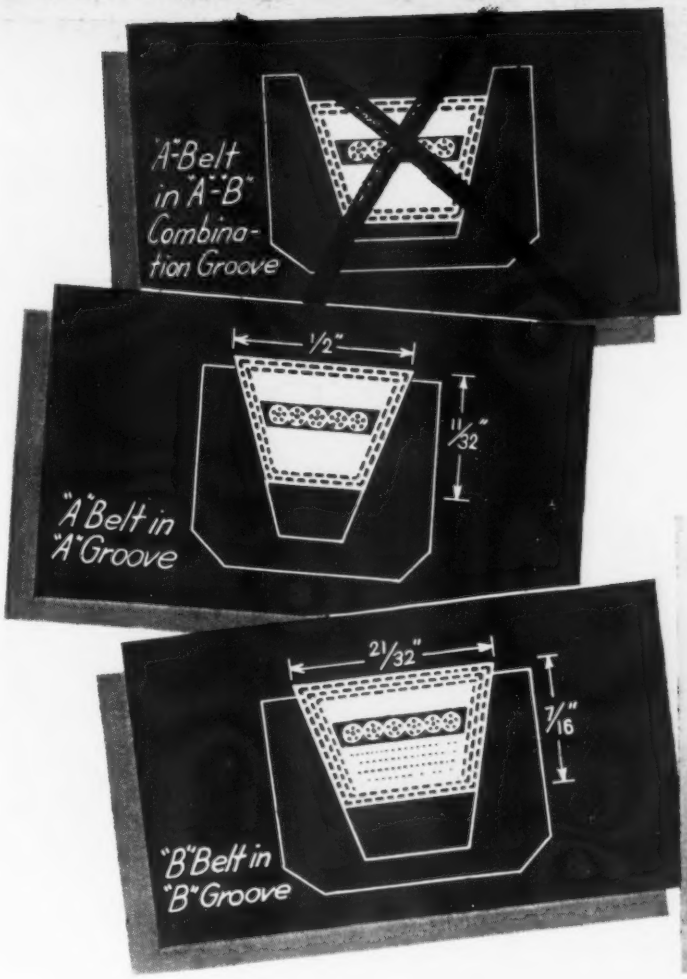
For example, high resistance to oils, chemicals, abrasion, and flexing—to name a few—are added in very desirable degrees by HYCAR latex, used as an impregnant or a coating. And HYCAR-impregnated materials may then be coated with any one of a number of other materials to impart additional properties.

All of this can be done, safely and simply, with HYCAR latex, because it's an inherently easy and safe material to handle. No vulcanization is required. Normal drying times are used. No explosive solvents need be handled. Nor is there any need for cumbersome and costly solvent recovery systems.

We would be glad to work with you on any problems relating to the use of HYCAR American rubber latex. For more information write Dept. HL-2, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio.

Hycar
Reg. U.S. Pat. Off.
American Rubber

B. F. Goodrich Chemical Company
A DIVISION OF THE B. F. GOODRICH COMPANY



NOW...

"A" and "B" V-Belts Fit Right and Show It

. . . because Worthington Makes QD Sheaves with "A" or "B" Grooves . . . NOT a Combination!

Never again will you have to compromise on sheaves with an "A–B" Groove combination. That's because Worthington now makes the Original QD Sheaves with "A" grooves for "A" Belts . . . "B" Grooves for "B" Belts. This progressive step was taken because Worthington found that more and more customers preferred this better-engineered drive . . . this better-fitting drive . . . this better-looking drive. Stocks include all sizes from 3" to 22" diameter in "A" . . . from 4" to 38" in "B".

BETTER SERVICE FROM BIGGER STOCKS

Because of the steadily increasing demand for stock QD Sheaves, Worthington has installed new production facilities.

This stepped-up output has resulted not only in a 40% price reduction in "A" and "B" sizes but also in greatly improved service. From 18 stock Hubs and 791 stock Rims, Worthington customers can choose more than 25,000 stock QD Sheaves combinations for V-Belt applications ranging from ½ to 200 hp — plus smaller fractional horsepower sizes . . . all stocked at strategic points throughout the country.

"Strongest Sheave for Its Weight Ever Made"

Investigate the reasons why customers agree that the new Worthington QD Driven Sheaves are the strongest sheaves for their weight ever made: "I" Beam construction of spokes; taper-mated, load-tested Hubs and Rims; full-sized Pull-Up Bolts; a design that reduces overhang stresses. These and many other features that prove *there's more worth in Worthington* are described in Bulletin VI400-B7. Ask your nearby Worthington distributor for it. *Worthington Pump and Machinery Corporation, Merchandising Division, Harrison, N. J. 36 District Offices throughout the U. S.*

WORTHINGTON QD SHEAVES

Easy to get on . . . Easy to get off . . .
Yet always tight on the shaft

WORTHINGTON

B6-55

PRODUCTS BASED ON MARKET RESEARCH

Centrifugal Pumps | Rotary Pumps | Steam and Power Pumps | Vertical and Horizontal Compressors | Multi-V-Drives | Variable Speed Drives

"TUFFER" Men Help Carders to get *Better Results*

HOWARD-MADE products, backed by 80 years experience in the manufacture of card clothing, are only part of the service we offer you. We know that mills welcome assistance that speeds up production, makes tough jobs easier, and increases efficiency.

That's why we invite you to talk over your problems with a Howard representative. You will find him qualified to help you get better carding results. Your dealings with him will be confidential in every way—and, of course, there's no obligation on your part.

Contact your nearest Howard plant or branch office.

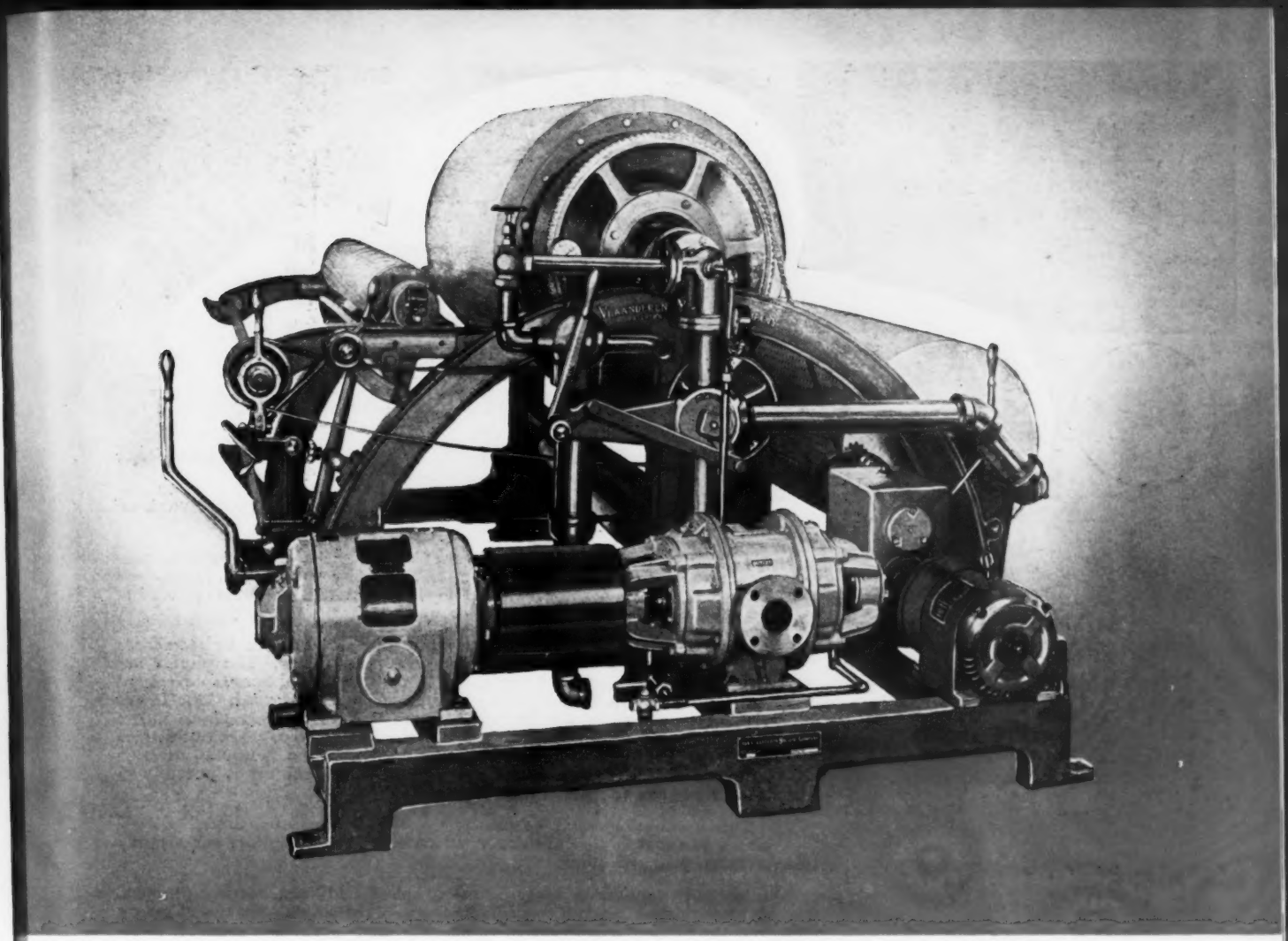
HOWARD BROS. MFG. CO.
WORCESTER 8, MASSACHUSETTS

Southern Plants: Atlanta, Ga. and Gastonia, N. C. **Branches:** Philadelphia, Pa. and Blanco, Texas

Direct Representation in Canada

A-5

TUFFER CARD CLOTHING **IMPROVES PRODUCTION ALL ALONG THE LINE**



DECATE MODERN FABRICS

TO CORRECT HARSH HANDLE, BREAKS, EXCESSIVE LUSTRE AND CLOUDY OR BLOTCHY DYEING

The conditioning machine shown above is well known to the trade. In many plants it has, for over ten years, been depended on to give that finishing touch to viscose and acetate rayon as well as to other fine fabrics, at a cost so low per yard that it need scarce be considered.

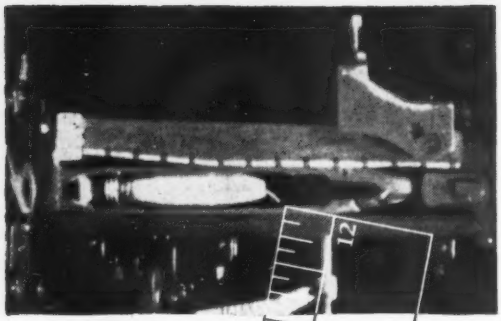
From time to time during the last few years we have made improvements to permit better production. For instance: faster take out speed, faster pick up speed and quicker brake action, faster removal of condensation and faster unloading speed.

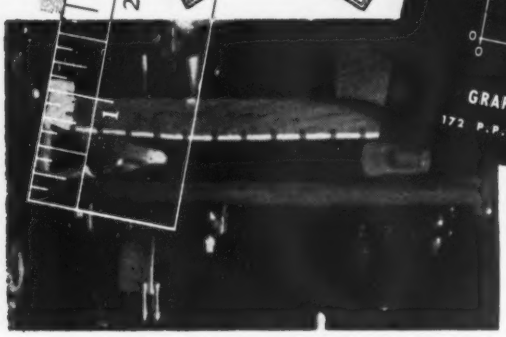
The many new fabrics of man-made yarns that are now becoming available will also be greatly improved by decating. We will send, on request, an eight-page book giving decating information and a full description of the Van Vlaanderen Decater.

VAN VLAANDEREN MACHINE CO.

370 STRAIGHT STREET **PATERSON, NEW JERSEY**

World's largest manufacturer of machinery for processing modern fabrics.





THIS SMOOTH

"Brake-Action"

Acts to Prevent Yarn-Breakage and Binder-Chatter

How to handle a shuttle that streaks back and forth across a loom faster than the eye can follow . . . *making almost 3 trips per second?*

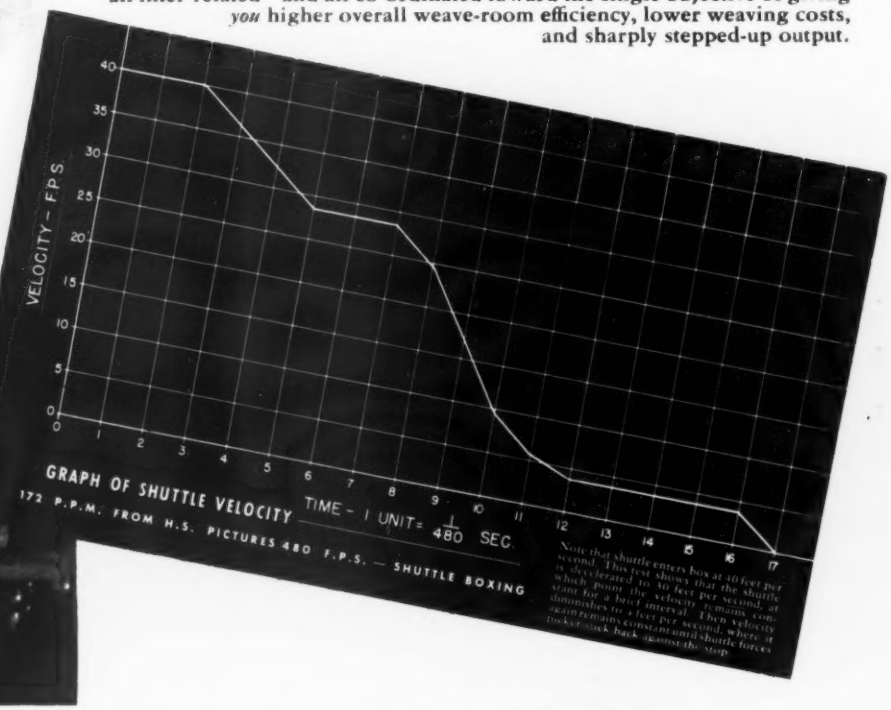
Let it slam at full force into the shuttle-box, and the yarn will slough off the bobbin, snarl up, then break.

The only other answer is to "brake" the shuttle to a stop without permitting it to slam. But this must be done within 10 inches . . . to a *dead stop* from 30 miles per hour! To do this in 1/30th of a second seems almost impossible.

How C&K engineers are approaching this problem can be seen from the two photos at the left and the speed chart below. The photos are "frames" from a motion picture taken by the high-speed camera developed and built by C&K, which takes 480 pictures each second. The lower picture shows the shuttle flashing into the box. The upper photo shows it fully stopped, a split second later. On the film between these two frames are 15 or 16 frames each showing the location of the shuttle at intervals of 1/480th of a second. These are the means whereby it is possible to make study charts such as the one illustrated.

This continuing study of shuttle boxing is, obviously, aimed toward giving you even higher uniformity of fabric-quality, and more consistently uninterrupted operation.

And this continuing study is one of many C&K engineering projects, all inter-related—and all co-ordinated toward the single objective of giving *you* higher overall weave-room efficiency, lower weaving costs, and sharply stepped-up output.


VELOCITY - F.P.S.
40
35
30
25
20
15
10
5
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
TIME - 1 UNIT = 1/480 SEC.
GRAPH OF SHUTTLE VELOCITY
172 P.P.M. FROM H.S. PICTURES 480 F.P.S. — SHUTTLE BOXING
Note that shuttle enters box at 40 feet per second. This test shows that the shuttle is decelerated to 30 feet per second, at which point the velocity remains constant for a brief interval. Then velocity diminishes to 2 feet per second, where it again remains constant until shuttle forces picker back against the stop.

Crompton & Knowles Loom Works

WORCESTER 1, MASSACHUSETTS, U. S. A.
PHILADELPHIA, PA. • CHARLOTTE, N. C. • ALLENTOWN, PA.
Crompton & Knowles Jacquard & Supply Co.
Pawtucket, R. I.

between Today's Knowledge and Tomorrow's Looms

...EASTERN HAS A NEW ANSWER!

"Liquid Envelope" gives stainless sheets:

Protection in shipment

Protection in storage

Protection during fabrication

Now you can get Eastern Stainless Steel sheets whose finish won't be marred in shipment . . . in storage . . . in handling . . . or even during fabrication! Eastern is the first in the field with an answer to the costly problem of refinishing. How? Because Eastern is the first to supply stainless sheets protected by "Liquid Envelope", the strippable plastic film, a coating so tough that the sheets can be cold-formed, even deep-drawn *without marring the finish, and with, in fact, improvement in results due to the lubricating property of "Liquid Envelope."*

You can now purchase polished sheets, shape them on the usual brakes or presses, strip the film, and assemble stainless steel equipment with practically no other finishing! This amazing protection cuts costs for both fabricator and user.

Stainless protected by "Liquid Envelope" is the answer to many problems of handling finished sheets. *It proves again that it is wise to . . .*

Ask Eastern for the Answer to Stainless

Specify Eastern Stainless Steel sheets with "Liquid Envelope" today. The plastic coating protects your pocketbook while it guards the stainless finish. And, for down-to-earth information about stainless steel sheets and plates, ask for your copy of the handbook, "Eastern Stainless Steel Sheets."

JMLco E:C1

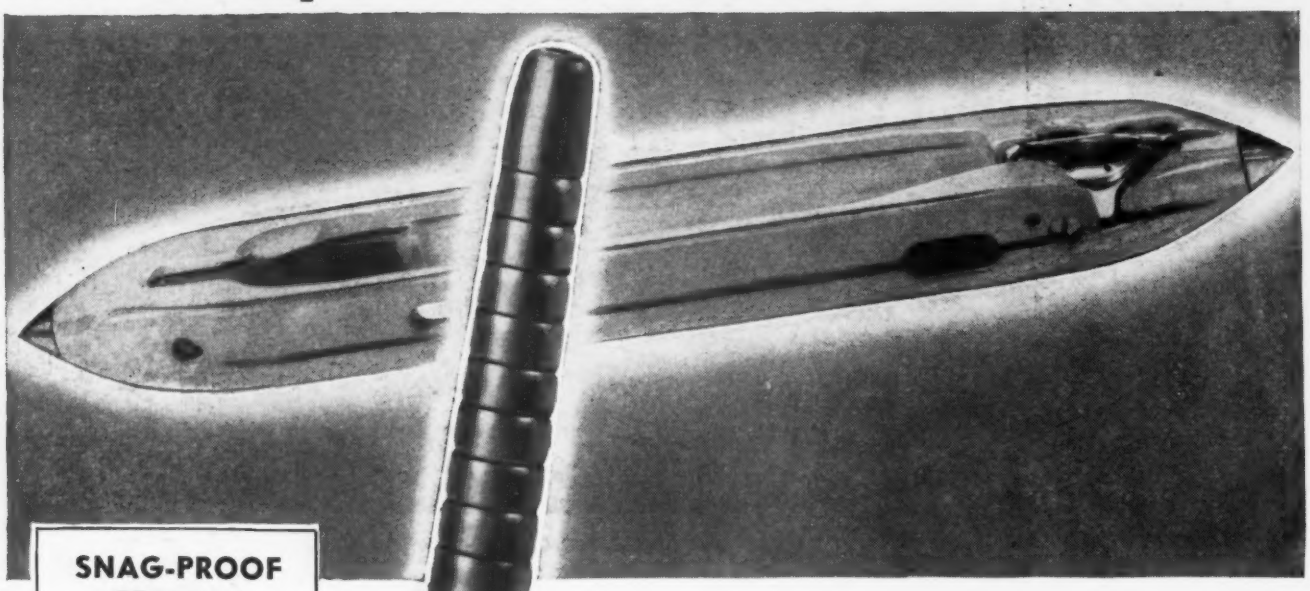
EASTERN STAINLESS STEEL CORPORATION

BALTIMORE 3, MARYLAND

ES

EASTERN STAINLESS

For Crompton & Knowles S-6 Looms...



SNAG-PROOF FERRULE

. . . is tapered at the top and swaged to a secure, streamlined fit. The bias cut is another special U S feature which prevents filaments from snagging where the metal joins the wood. For the same reason, the butt end is recessed into the head of the bobbin. Bunch grooves lock the ferrule to the wood and prevent slippage.

This U S Automatic Loom Bobbin is made-to-order...

● With the new U S Shuttle for C & K S-6 Looms, you'll need this specially designed U S Bobbin. Together they will enable you to take full advantage of the capacity for extra quality and extra production built into this popular new loom.

In collaboration with C & K designers, U S engineers developed the sturdy bias-cut, tapered top metal ferrule which provides contact for the electric feeler mechanism. In addition, this bobbin offers all the top-quality features that distinguish U S design. It is made of selected split-stock hard wood, turned on-the-grain, and has a U S transparent enamel finish, which fully protects the bobbin even under heavy yarn conditioning in 200° steam.

FOR AUTOMATIC QUILL WINDING, which requires unusually high standards of dimensional accuracy, weight, and balance in bobbins, because of the high speeds and sensitive controls involved, this bobbin meets every requirement.

Now is the time to get complete details of this bobbin, and the new shuttle, if you have ordered S-6 Looms, or expect to order them. A U S representative will be glad to show you samples and explain the features.

U S BOBBIN & SHUTTLE CO.

PROVIDENCE, R. I.
GREENVILLE, S. C.
CHICAGO AGENT:
Albert R. Breen
80 E. Jackson Blvd.

LAWRENCE, MASS.

CANADIAN AGENT:
W. J. Westaway
Montreal Ave., Hamilton, Ont.

JOHNSON CITY, TENN.
CHARLOTTE, N. C.
ALABAMA AGENT:
Young & Vann Supply Co.
Birmingham

THE SEAL OF QUALITY AND SERVICE SINCE 1857
US
ESTABLISHED 1857

STOPS STATIC INSTANTANEOUSLY! SAFELY!

The CHAPMAN *Electric Neutralizer*

For years, the problem of static in textile mills was costly, time-devouring, constantly troublesome. Static slows down production, spoils work, frays operators' nerves. Humidity control, to a certain extent correct for regain and some other objectives, is not the answer for static. And EXCESSIVE humidity is objectionable and expensive.

IN THOUSANDS OF MILLS—EVERYWHERE,

CHAPMAN Neutralizers are eliminating static with complete safety, comfortably, and at low cost. A great percentage of woolen mills in this country and other countries use the CHAPMAN Neutralizer: 1) on the condensers of wool carding sets; 2) over doffer combs; 3) on Peralta machines; 4) on nappers; 5) on dryers; and on other machines. Worsted mills use the CHAPMAN Neutralizer on cards, and on the worsted drawing process. Where the cotton system is employed in making blended yarns containing wool, acetate rayon, and other synthetics, or in making wool yarns, mills use the CHAPMAN Neutralizer to eliminate static created during the drawing process and with doffing. For many years CHAPMAN has been furnishing its equipment to mills for use on drawing frames of all makes, for all past and present makes of American cards, and most of the British cards. The CHAPMAN Neutralizer is virtually becoming standard equipment for high speed warpers and slashers.

WITH COMPLETE SAFETY

1. The CHAPMAN Neutralizer is absolutely safe.
2. No harmful rays are produced or emanate from it.
3. No shielding is necessary.
4. There is no possibility of immediate or future harmful effects to operators.
5. No state or other government objects to its use.
6. CHAPMAN Neutralizers are tested and approved by the Underwriters' Laboratories.

COMFORTABLY

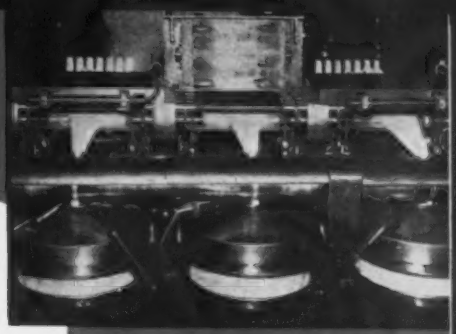
Excessive heat and humidity are not required when CHAPMAN Neutralizers are on the job. Operators work comfortably and, therefore, efficiently.

AT LOW COST

Cost of the small quantity of electrical energy used to operate any CHAPMAN installation is negligible. Savings are immediate in smooth production flow without static interference.

CHAPMAN'S experience through forty years in solving static problems in textile mills is available to you without obligation. Call upon CHAPMAN ENGINEERING SERVICE.

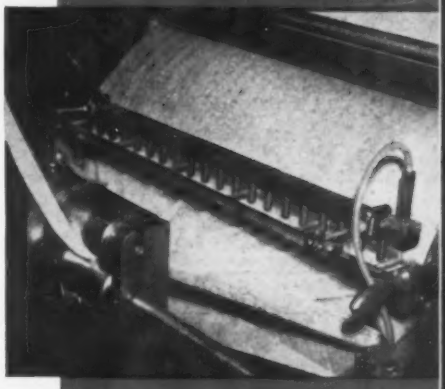
Write for your copy of the new Handbook of the Chapman Neutralizer, Bulletin No. 66.



Three slivers in a line of drawing—equipped with CHAPMAN Neutralizers. One clearer cover is raised.

Two lines of drawing, running blends containing wool, acetate rayon, etc. Equipped with CHAPMAN Neutralizers, insuring full production.

Line of Tape Condensers in a woolen mill, all equipped with CHAPMAN Neutralizers of the individual type.



A close-up view of a cotton card fitted with a CHAPMAN Neutralizer.

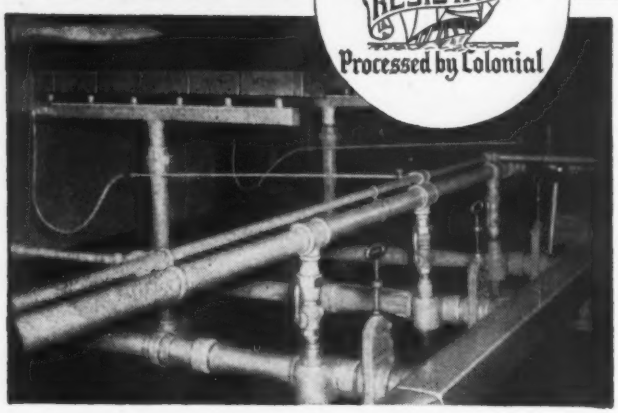
CHAPMAN ELECTRIC NEUTRALIZER COMPANY

ESTABLISHED 1904 PORTLAND, 6, MAINE

NEW HIGHS IN TEXTILE DRYING

...with GAS

Palmer-tenter unit equipped with Radiant GAS Burners arranged under the blanket traveler-frame



RESISTAIR — HIGHLY RESISTANT TO ATMOSPHERIC FUMES — Processed by Colonial

PURE DYES

Colonial

PIECE DYE WORKS, Inc.

2101-2107 EIGHTY-THIRD STREET, NORTH BERGEN, NEW JERSEY

January
second
nineteen forty-seven

American Gas Association
420 Lexington Ave.
New York 17, N. Y.

Gentlemen:

We are pleased to state the advantages obtained by the use of infra-red burners on our Palmer Tenter Unit. We have found this equipment to be very advantageous to us and, since the date of its installation in 1942, we have had completely satisfactory trouble-free operation.

Prior to the installation of this equipment, we had a number of open flame gas burners. After the installation of two infra-red burners, we were able to increase our drying speed on light quality acetate, rayons and rayon acetate mixtures by one hundred per cent. We are now also able to process heavy quality goods which we were unable to dry with the old type of equipment. We now run a four fibre suiting fabric consisting of aralac, cotton, wool and rayon.

One advantage which we feel to be well worth mentioning is the increase in life of our Palmer blankets. These blankets cost $550.00 each. Prior to the installation of infra-red equipment, it was necessary to install a new blanket on an average of once every six weeks. We now find it necessary to change blankets only twice a year. This feature alone has repaid the cost of the equipment and gas used many times over. Needless to say, we are very well pleased with our investment in these burners.

Very truly yours,

COLONIAL PIECE DYE WORKS

Treasurer

TEXTILE processors utilize the production-line advantages of GAS and modern Gas Equipment in many operations; they record outstanding success in reducing processing costs and increasing production with textile machinery employing GAS for drying, singeing and similar requirements.

Radiant heat gas burners used on a palmer-tenter unit enabled Colonial Piece Dye Works, Inc., North Bergen, New Jersey, to establish new production records while amortizing the cost of equipment and fuel through savings in palmer blanket replacements.

Wherever heat is required for textile processing the ideal production-line fuel is GAS; the ideal productioneering tools for heat processing have been developed by the manufacturers of modern Gas Equipment. Your local Gas Company will aid in applying GAS to your textile heating operations.

Photos courtesy Red-Ray Manufacturing Co., Inc. manufacturers of Radiant Heat GAS Burners

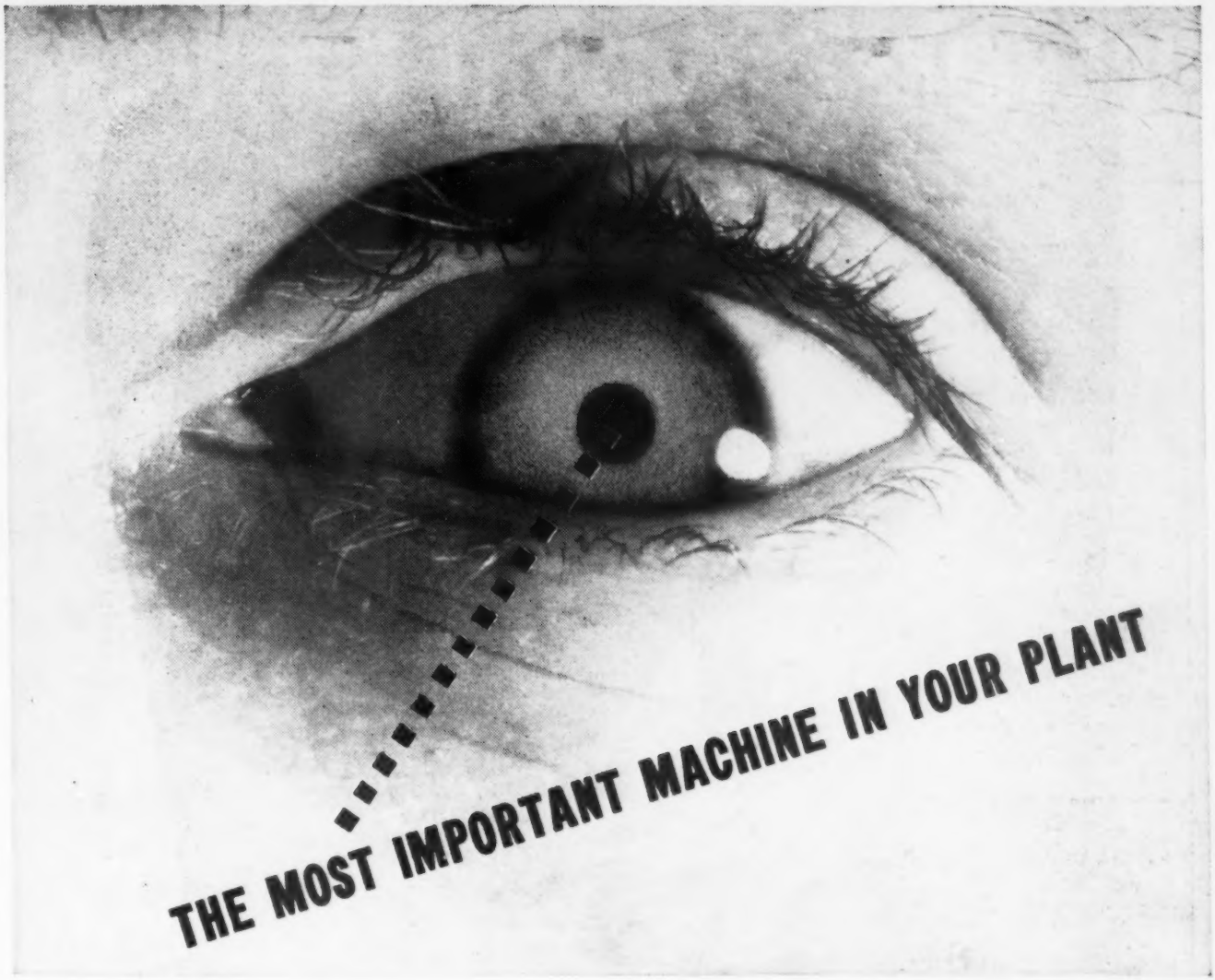
AMERICAN GAS ASSOCIATION

420 LEXINGTON AVENUE, NEW YORK 17, N.Y.

MORE AND MORE...

THE TREND IS TO GAS

FOR ALL INDUSTRIAL HEATING



THE MOST IMPORTANT MACHINE IN YOUR PLANT

NO MATTER what you manufacture, there's one machine in your plant more important than any other . .

THE HUMAN SEEING MACHINE!

For fast, efficient production your workers must see quickly, easily and *accurately*. And to operate in comfort these "human seeing machines" need ample light of high quality, free of glare and shadows and evenly distributed throughout the work area.

But lighting fixtures alone are not enough. Your local Lighting Engineer will tell you that. For maximum efficiency they must be backed up by ceilings and walls finished with a paint of highest possible reflectivity. For light and paint are PARTNERS in the creation of good seeing conditions.

Alert maintenance and operating men know this means WHITE paint, for white reflects far more light than any other color. They know, too, that if painting is to be a sound investment, the white they buy must be easy to apply on large areas, give good "yardage" without loss of hiding power and remain white for the longest possible time.

That's why for years so many of America's better plants have standardized on "Barreled Sunlight."

U. S. GUTTA PERCHA PAINT COMPANY
20C Dudley Street, Providence 1, R. I.

I'd like to know more about the partnership of Light and Paint. Please send me your free booklet, "Light and Color in the Work-World."

COMPANY .....

STREET AND NUMBER .....

CITY ..... ZONE ..... STATE .....

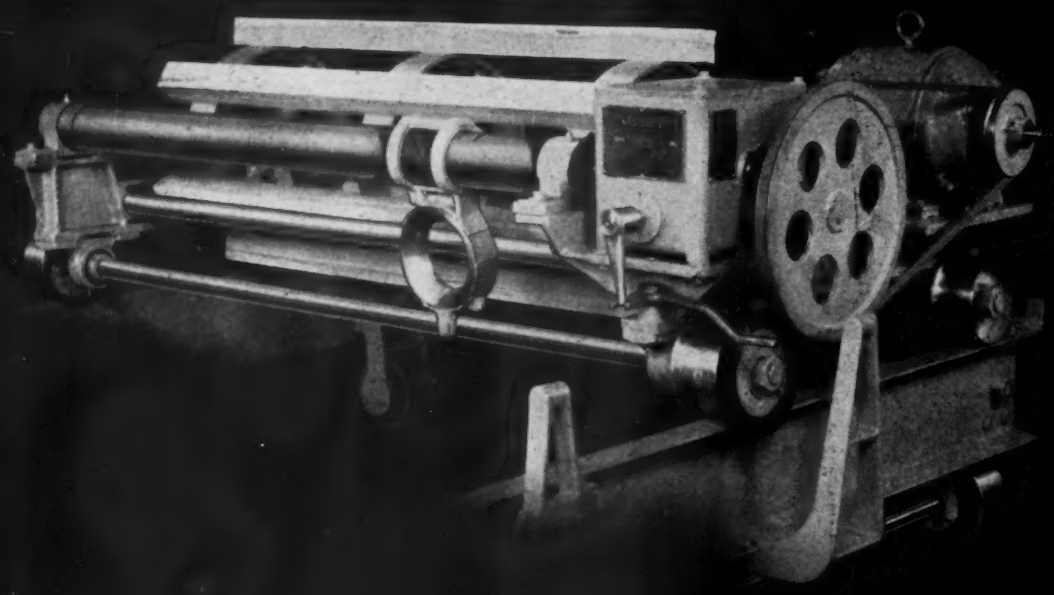
MY NAME IS .....

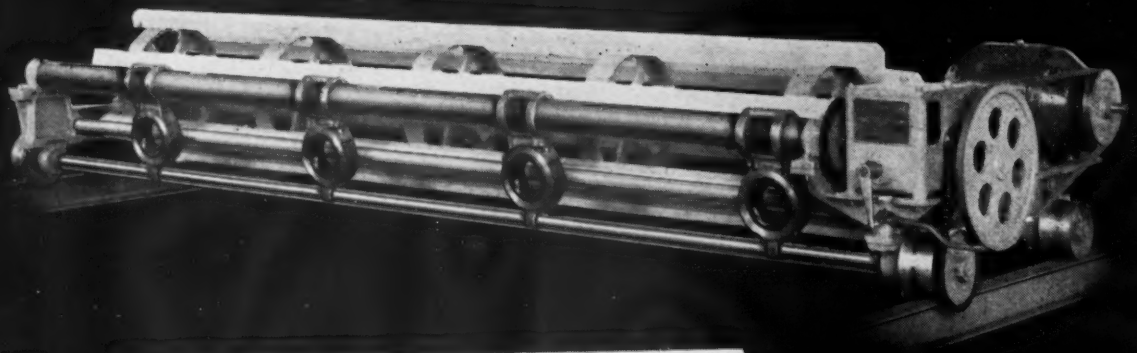
MY TITLE .....

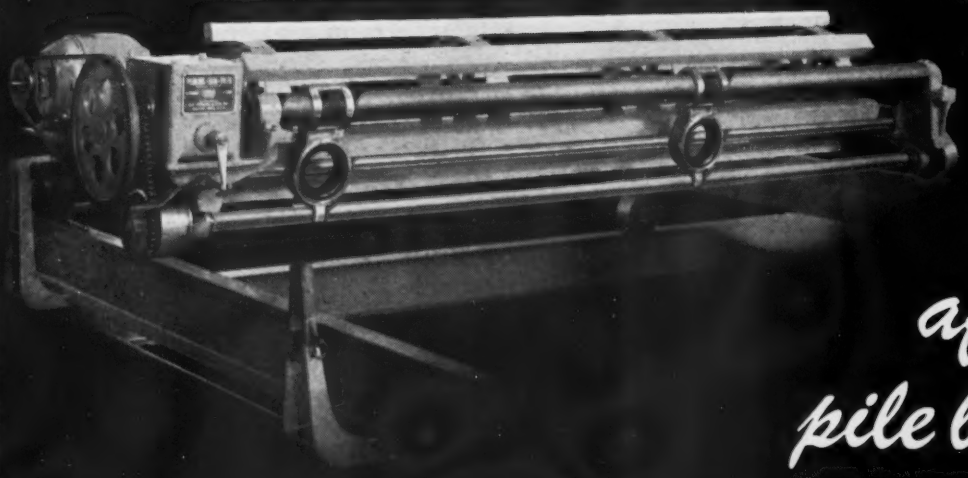
© 1947 U. S. Gutta Percha Paint Company

PERKINS AUTOMATIC BIN PILERS

PATENTED







You cannot afford to pile by hand

B. F. PERKINS & SON, INC.

ENGINEERS AND MANUFACTURERS

HOLYOKE • • • MASSACHUSETTS

KOPPERS fire-retardant TREATMENT GIVES plus protection TO THIS ROOF

Although it's not apparent to the eye, something important has been added to this roof. A special Koppers pressure-treatment has promoted the wood into the *fire-retardant* class. Sparks find discouragement, instead of a welcome.

One early installation got a dramatic test when a fire broke out in a lacquer pit and roared like a blow-torch up against the roof structure. There was no spreading of the fire, so the efforts of the fighter-crew were concentrated on the pit itself. When the fire was out, in spite of heat that had ruined electrical conduit and fixtures, the only damage to the wood was a char in the area exposed to flame. Even this was so shallow that structural integrity of the beams was not impaired—no replacements were made.

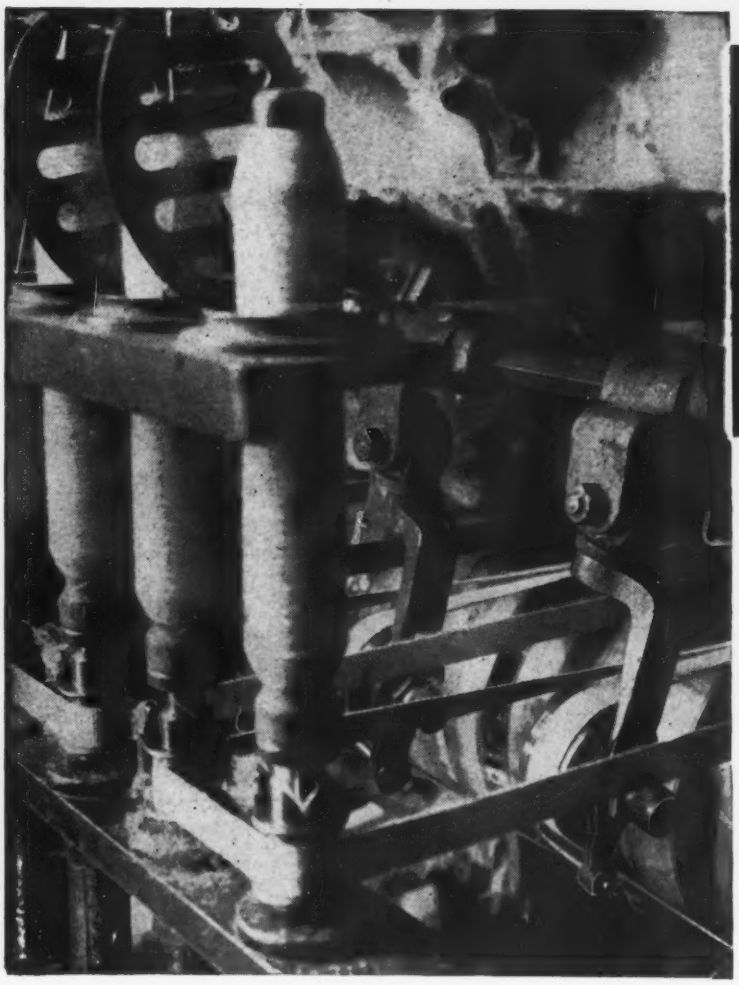
Fire-retardance adds another to the long list of economies and advantages that recommend pressure-treated wood for many varieties of structures: low first cost, low maintenance, ease and speed of construction, ease and economy of alteration, enduring resistance to decay and insect attack. Koppers treating plants, located in strategic areas, are equipped to pressure-treat your lumber . . . and, if desired, to frame it to blue-print prior to treatment. For helpful information on treatments and applications, ask for our bulletin, "Economical and Permanent Construction with Pressure-Treated Wood."

K KOPPERS

PRESSURE-TREATED WOOD

KOPPERS COMPANY, INC:

PITTSBURGH 19, PENNSYLVANIA



Ball Bearing Tape Tension Pulleys

Complete Service for any Application

Tape tension pulleys should run freely—the reason why ball bearing tape tension pulleys are preferred equipment on any spinning frame or twister frame. Ball bearing tape pulleys insure minimum drag, freedom from wear, and are sealed against lint or fly. They reduce breakage, after shut-downs and in poor weather, resulting in more production. They save power and lengthen tape life. There are no "ends down" from pulleys sticking, with ball bearing pulleys on your frames. They are also inexpensive to install. One pulley is used for each four spindles reducing the cost to a few cents per spindle. West Point Foundry and Machine offers you a *complete* service. Pulleys in the proper size and specifications for any applications. And we have patterns on hand for brackets for all styles of frames. Let us give you full information, quotations and recommendations on this service.

WEST POINT FOUNDRY & MACHINE CO.

(Batson-Cook Company, Owners)

WEST POINT, GEORGIA

Color

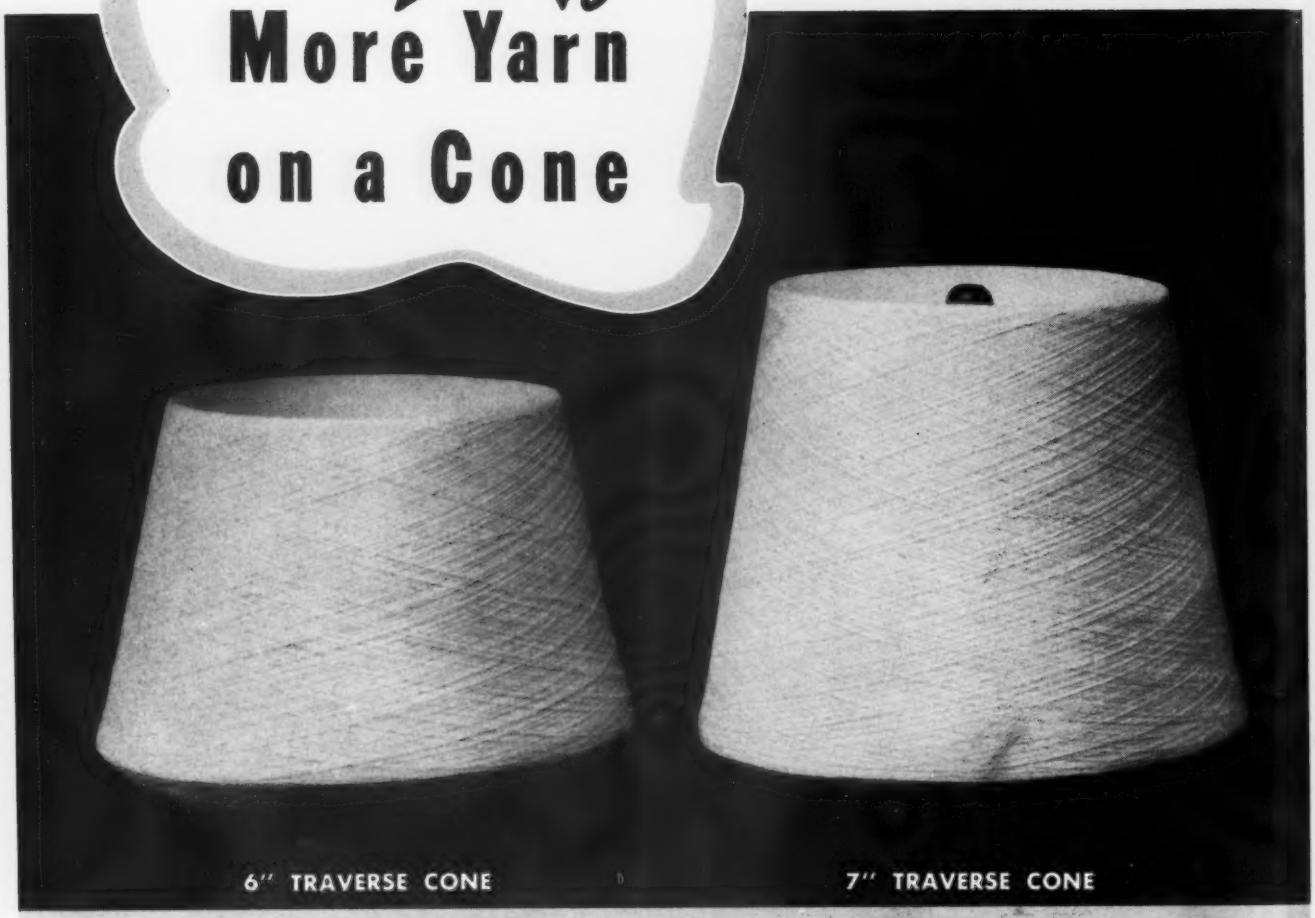
THE MASTER SALESMAN

Franklin Process

NEW YORK REPRESENTATIVE • 40 WORTH STREET

PROVIDENCE • PHILADELPHIA • GREENVILLE • CHATTANOOGA

Get 10% More Yarn on a Cone



Use a FOSTER Model 102 with 7" Traverse

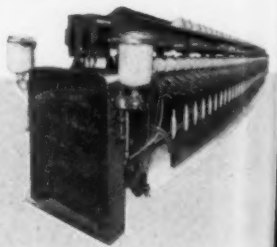
MANY MILLS use a 6" traverse cone for no better reason than that they always have.

If this is so in your mill, why not install Foster Model 102 winders equipped to wind 7" traverse cones. They will give you 10% more yarn per cone, thus reducing number of doffs per day at the winder and increasing production. Reloading of creels in succeeding operations will also be reduced.

Whether equipped to wind 7" or 6" traverse cones, the Foster Model 102 will increase production at least 100%, as compared with obsolete models, and will reduce operating costs by ⅓. Features which increase production, lower costs, improve quality and protect investment are as follows:—

1. Cone holder which swings out at convenient height, permitting quick, easy doffing.
2. Several types of self threading tension and slub catching attachments.
3. Empty bobbin conveyor BELOW bobbin pins, which discharges into STANDARD sized truck. No handling of bobbin boxes. Double conveyor is furnished when different bobbins are used on different sides of machine.
4. Flexibility. Machine can be equipped to wind tubes, knitting cones, dye packages or warping cones. With minor changes it will also wind any taper and any angle of wind from 9° to 18°.

Send for Bulletin A-95



FOSTER MACHINE CO.

WESTFIELD, MASSACHUSETTS, U. S. A.

Southern Office: Johnston Bldg., Charlotte, N. C.; *Canadian Representative:* Ross-Whitehead & Co., Ltd., University Tower Bldg., 660 Ste. Catherine St. West, Montreal, Quebec.

KOHORN

Rayon yarn and staple fiber plants Built by KOHORN
Relieve South American rayon shortages

Rayon Peruana S.A., Lima, Peru. Yarn production started October 1946

This rayon plant and its modern machinery was designed, constructed and placed in operation in 17 months by Oscar Kohorn & Co., Ltd. Capacity is 3 tons of viscose filament yarn per day. Staple fiber output of 5 tons per day is being added. Kohorn patented short-aging process, and the simple, efficient double godet pot spinning system are assuring this plant's success. Kohorn experts are teaching workmen and maintaining profitable operation.

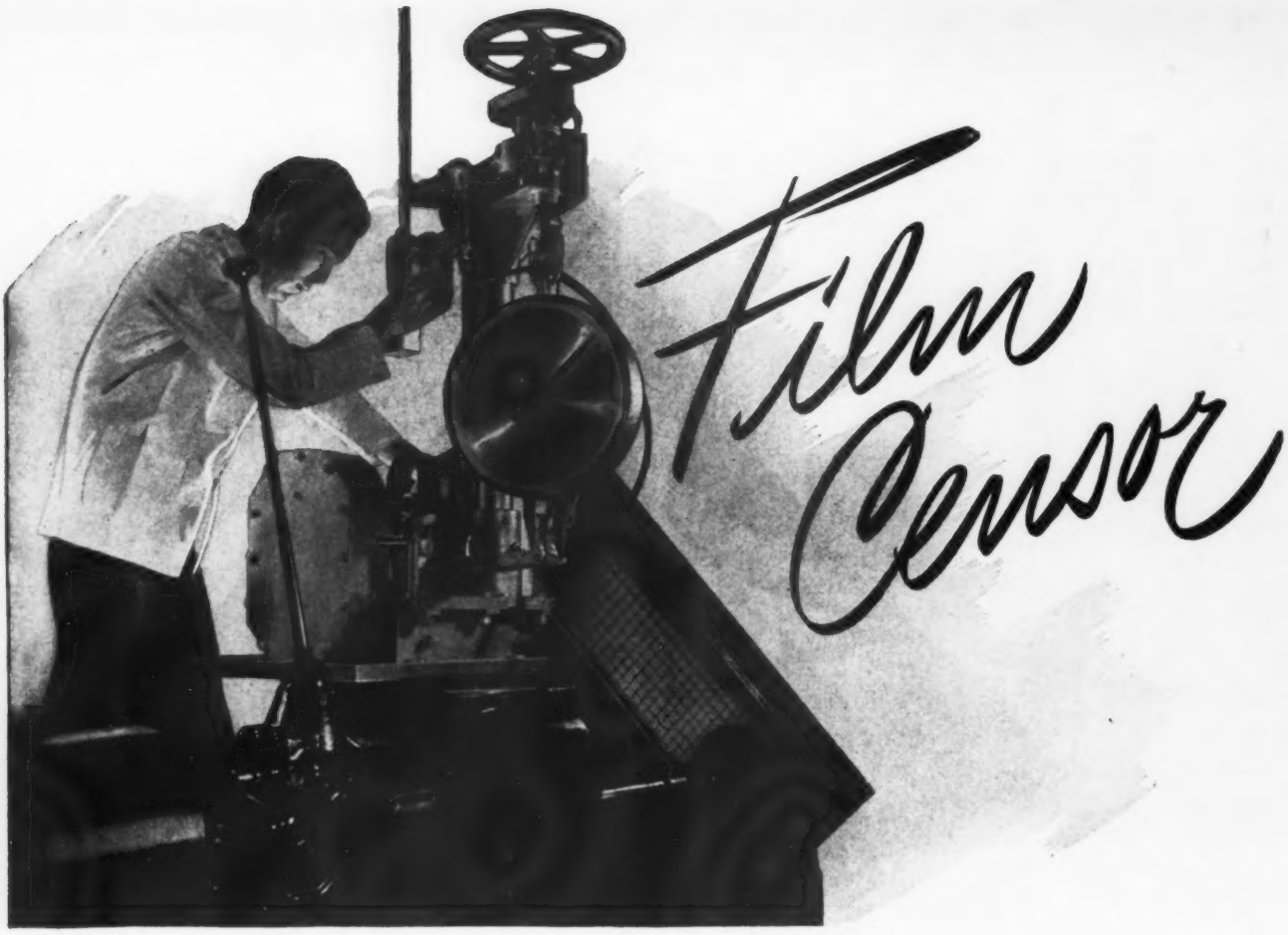
In Brazil and Chile we have other rayon yarn and staple fiber plants under construction. We have erected rayon plants in all parts of the world. We guarantee our plants for quantity and quality of production and raw material consumption. Inquiries are invited. Confidential consultations will be arranged without obligation.

** Write for an illustrated brochure that describes Rayon Peruana S.A.*

OSCAR KOHORN & CO., LTD.

PIONEERS OF THE RAYON INDUSTRY

501 FIFTH AVENUE NEW YORK 17, N. Y.



The alert technician in the illustration is censoring film—the strength of film in Sinclair industrial lubricants designed for protection of your valuable machinery.

These tests prove that Sinclair lubricants have the film strength to keep moving metal parts separated under extreme temperature and pressure conditions. With the SAE film strength test machine, skilled laboratory technicians check constantly, reject sub-standard product, assure you of essential protection.

Every batch of lubricant in process gets an equally careful check for other all-important qualities. Constant research by Sinclair assures you of the benefits of new developments in film strength...and in all other prime lubricant qualities.

Sinclair Textile Lubricants

LILY WHITE OILS
For Spindles

NO-DRIP LUBRICANTS
For Coulier Motion
Rocker Arms, Gear and Camshaft Bearings, and Half-speed Shock Absorbers

RUBILENE
For Air Compressor and Vacuum Pumps

COMMANDER OILS
For General Mill Lubrication

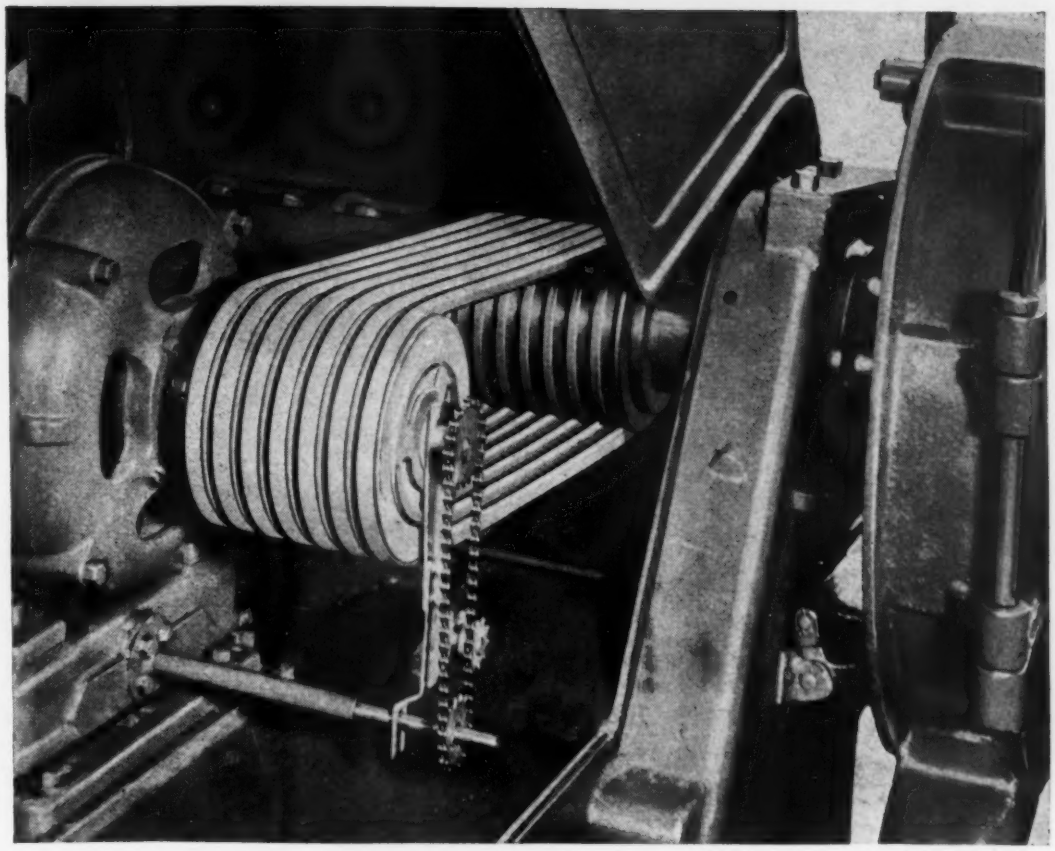
BEARING GREASE AF
For Anti-Friction Bearings

SINCLAIR REFINING COMPANY • 630 FIFTH AVENUE, NEW YORK 20, N. Y.

SINCLAIR

Lubricants for Industry

FINEST CRUDES + EXPERT RESEARCH and MANUFACTURING CONTROL = OUTSTANDING PERFORMANCE



Texrope *VARIABLE* Speed Drive ...the practical way to get *Accurate Speed Control*

- To regulate a machine tool to suit variations in job, material, or individual workman
- To control the volume of air from heating and ventilating fans
- To vary the speed of a pump, spinning frame, conveyor, rock crusher or grinding wheel
- *Wherever* the ability to change operating speeds at will can add to efficiency, output or economy—

Install Texrope Variable Speed Drives!

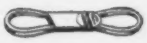
These flexible drives use economical constant speed motors. They provide infinite speed variations within their ranges—quickly, easily, accurately.

Vari-Pitch sheaves using A, B, C, D or E belts are available for stationary or motion control, with range up to 25% per sheave; *Vari-Pitch* sheaves using Q or R wide belts allow variations up to 100%; *Vari-Pitch* speed changers permit ranges up to 375%. There are types and sizes to suit all needs, from fractional to 300 hp!

Texrope offers the *most complete* line of variable speed drives made... engineered and built by Allis-Chalmers, originator of the multiple V-belt drive. See Sweet's Catalog, or call your nearby A-C office or dealer for Bulletin 20B6051G. ALLIS-CHALMERS, MILWAUKEE 1, WIS.

A 2200

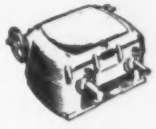
TEXROPE ..Greatest Name in V-Belt Drives



"Super 7" V-BELTS
Five Types — Sizes to suit every power transmission job.

Texsteel, Texdrive, "Magic-Grip"
— sheaves in a full range of sizes, grooves.

"Vari-Pitch" SHEAVES
Exact variations in speed, stationery or motion control.



SPEED CHANGERS
Speed variations up to 375% at the turn of a crank.

ENGINEERING
Finest V-Belt engineering talent in the world—at your call.

TEXROPE "Super 7" V-Belts result from the cooperative research of two great companies — Allis-Chalmers and B. F. Goodrich. They are sold only by A-C.

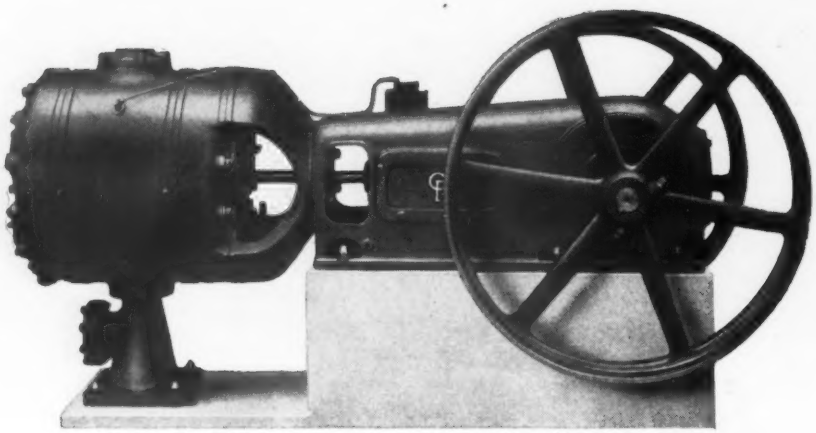
ALLIS-CHALMERS

One of the Big 3 in Electric Power Equipment — Biggest of All in Range of Industrial Products

1847 1947
A CENTURY OF SERVICE to Industry THAT MADE America Great

AUTOMATIC WATER RELIEF

protects CP dry vacuum pumps—



• One of the discharge assemblies in each end of the cylinder of a CP Horizontal Vacuum Pump is arranged as a special automatic valve. Should a slug of liquid be accidentally drawn into the cylinder the relief valve assembly will lift off its seat against a heavy spring, providing extra escape area for the liquid and minimizing the danger of damage to the pump. This is an exclusive CP feature.

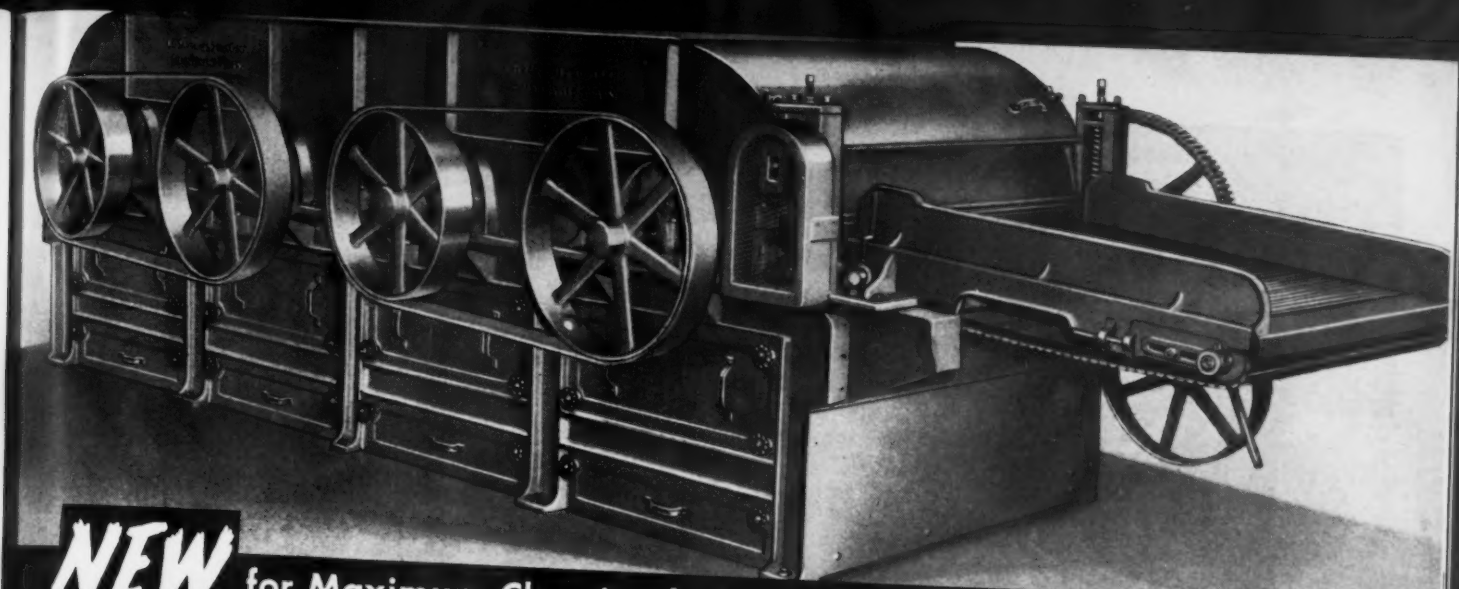
The durable Simplate Valves are located in both cylinder heads parallel to the piston face, affording low valve clearance and high volumetric efficiency at high vacua.

Arranged for belt, motor or steam drive, CP Single and Duplex Horizontal Dry Vacuum Pumps are available in capacities up to 15,000 c.f.m. Two-stage pumps available for very high vacua. Write for complete information.

CHICAGO PNEUMATIC TOOL COMPANY

General Offices: 8 East 44th Street, New York 17, N. Y.

PNEUMATIC TOOLS • AIR COMPRESSORS • ELECTRIC TOOLS • DIESEL ENGINES
ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES



NEW for Maximum Cleaning before scouring, for non-breakage of Fibers

SARGENT'S

4 CYLINDER

WOOL OPENER

The SARGENT FOUR-CYLINDER WOOL OPENER *offers wool scourers, also woolen and worsted mill operators all the modern advantages they're enjoying from our Double Cylinder openers,* PLUS *a maximum of cleaning and opening of the fibers, thereby reducing scouring costs. Its many distinctive features include:*

- An adjustable nip for the feed rolls. For short fibers, rolls can be run close to the teeth of the first opening cylinder. For long fibers, rolls are set further away from cylinder, preserving staple lengths, preventing fiber breakage.
- Variable speed drive for the feed rolls and feed apron.
- "V" belt motor drives for the cylinders.
- Screens easily removed from side.
- Hinged covers on top expedite cleaning when required.
- Ball-bearing mountings.
- A large capacity with production up to 3000 lbs. of grease wool per hour.

Write us for complete details.

C. G. SARGENT'S SONS CORPORATION

GRANITEVILLE, MASSACHUSETTS, U.S.A.

Soon after Edison Electrified the World

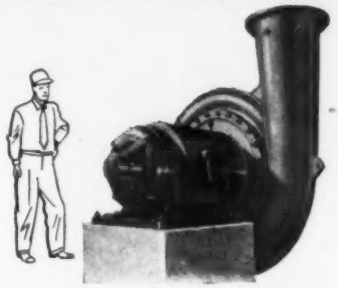
OTIS Electrified the Elevator

Otis installed the world's first successful *electric* elevator in 1889 . . . soon after electricity became commercially available. • *Hydraulic* elevators, currently in use at that time, required bulky, heavy equipment and were expensive to install and operate. • The *electric* elevator, compact and more simple to install, made elevator service economically practical for buildings of every size. • This important step in the development and improvement of elevator service typifies the basic pioneering which has maintained Otis leadership for nearly a century.

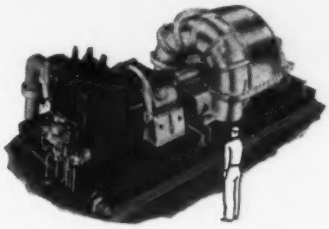
Otis ELEVATOR COMPANY
OFFICES IN ALL PRINCIPAL CITIES

For the latest in vertical transportation call Otis today.

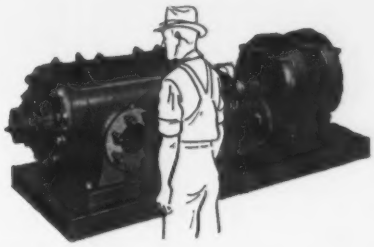
DOES YOUR PROCESS CALL FOR Air or Gas?



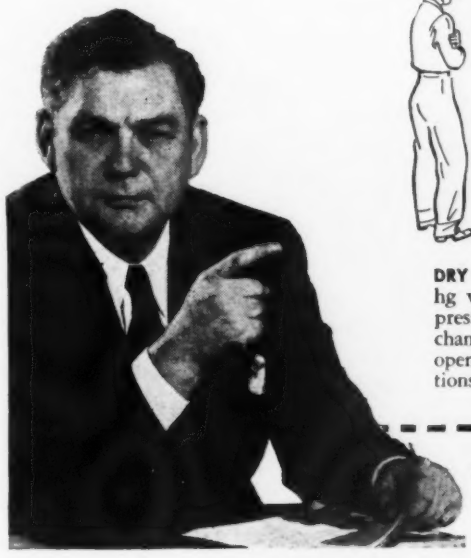
SINGLE STAGE BLOWERS. Available in pressure ranges from one to 6.50 lbs. Features: Discharge nozzle can be arranged 24 ways. Cast casing provides rigidity, longer life, smoother operation . . . deadens machine noises, eliminates vibration.

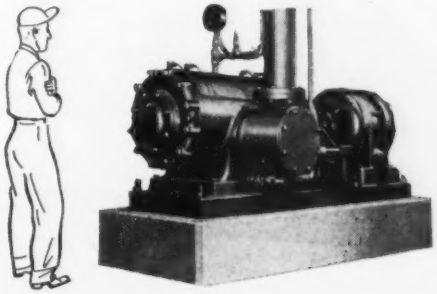


MULTI-STAGE BLOWERS. Inlet volumes up to 130,000 cfm, pressure to 35 lbs gauge, uncooled. Centrifugal type, for boosting, exhausting, circulating. Cannot build up dangerous pressures. Pressure volume curve favorable to parallel operation.

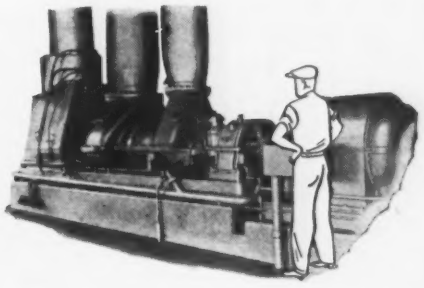


ROTARY COMPRESSORS, sliding vane type. Capacities for 5 to 35 psig. Air is compressed in cells formed by blades moving freely in and out of longitudinal slots in rotor. Quiet, smooth operation. Notably low maintenance. Units start unloaded.





DRY VACUUM PUMPS. Range to 28½ inches hg vacuum. Same principle as rotary compressors except that inlet is hooked up to chamber to be evacuated and exhaust is open. Operates free of vibrations or pulsations. No inside valves. Saves floor space.



AXIAL COMPRESSORS. Compress to 60 lbs, gauge with high efficiencies. *Good base load machines.* Handle large fixed volumes with pressure variations over a comparatively wide range. Used in connection with *gas turbines.* Cannot build up dangerous pressures.

WHETHER FOR AERATION, AGITATION, CIRCULATION OR COMBUSTION . . . ALLIS-CHALMERS BUILDS 5 TYPES OF EQUIPMENT TO HELP YOU!

THIS WIDE RANGE simply means that you can be *assured* of equipment that will "tailor-fit" your process.

Allis-Chalmers experience in air and gas handling equipment dates back half a century. A-C *developed* the use of turbo-blowers in the U.S., as well as the sliding vane principle that established *rotary-type* compressors and vacuum pumps.

In addition, Allis-Chalmers builds *other* types of high-speed rotating machinery—thus, can guarantee coordinated drive and power requirement.

This combined experience is practical evidence of Allis-Chalmers ability to help solve your problems.

A qualified engineer in our nearby Sales Office is ready to discuss your future needs, whether for standard or specially designed units. ALLIS-CHALMERS, MILWAUKEE 1, WIS. A 2196

ALLIS·CHALMERS

One of the Big 3 in Electric Power Equipment — Biggest of All in Range of Industrial Products

1847 1947 A CENTURY OF SERVICE to Industry THAT MADE America Great

H & B HIGH-DRAFT

It's the LITTLE Things That Make a BIG Difference

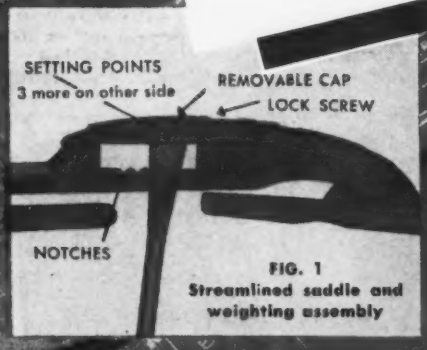


FIG. 1
Streamlined saddle and weighting assembly

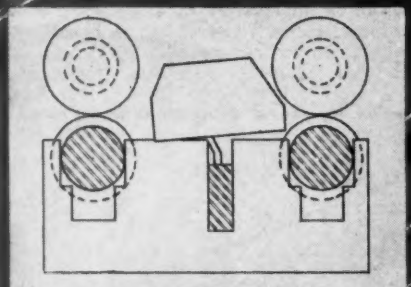


FIG. 2
Fixed setting for 2nd and 3rd rolls

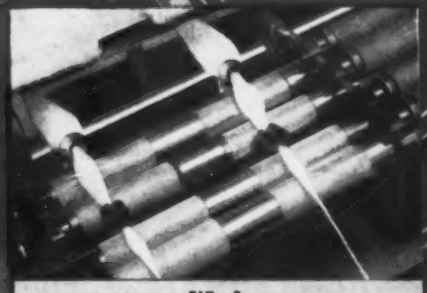


FIG. 3
Four roll system with scroll condenser

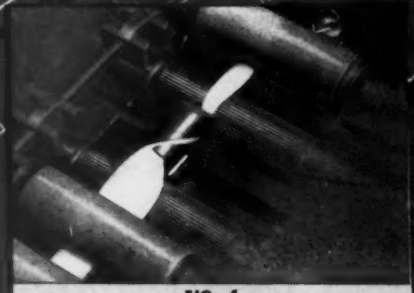


FIG. 4
Five roll system with scroll condenser

H&B AMERICAN

Builders of Modern

*Conventional 3 roll frames are furnished when necessary.

FACTORY, EXECUTIVE OFFICES AND EXPORT

SLUBBER* (4 or 5 roll)

NO DEVELOPMENT in textile history has been accepted with greater enthusiasm than high-draft in the card room. This is because no other development has been able to effect such savings without reducing the quality of product. High-draft roving cuts costs by eliminating from 1 to 3 operations and theoretically maintains quality by doing the right thing at the right time, *namely drafting the fibres when they are still untwisted.*

H & B High-Draft Roving achieves complete *practical* success in maintaining quality by careful design and coordination of many small details. 440 drawings are required for one size of frame. Doing the right thing in the right way is made possible by attention to the LITTLE things that make a BIG difference in results. Here are a few of the little things to which we give our special attention.

BUILDER MOTION — This mechanism is so dependable that no hand adjustments between doffs are necessary. It *automatically* eliminates the problem of stretched roving. Neither the use of accurately profiled cones alone, of a positive belt shipper, nor of other precision parts is responsible, but the combination and coordination of all three.

POSITIVE ROLL WEIGHTING (Fig. 1) — This mechanism (plus our scroll condenser) eliminates the danger of "link sausage" roving and also eliminates unauthorized tampering with weighting. Saddles are notched and marked for 5 separate stirrup weighting positions. Once the stirrup is properly located it is impossible to move it without removing a cap on top of the saddle, which is held in place by a set screw. There are no adjusting screws for the operator to "play" with. Saddle is streamlined for easy cleaning and self oiling.

SCROLL CONDENSER (Figs. 3 & 4) — Here is a polished performer that grows smoother with use. Our Bakelite patented Scroll Condenser eliminates static, prevents flaring and spreading of fibres by condensing them into compact slivers without disturbing parallelization, and gives just enough false twist to allow better control in drafting. It comes to us as smooth as glass, gets even smoother with use, does not absorb moisture or become sticky, and gives no trouble after long shutdowns.

FIXED SETTING BETWEEN 2ND AND 3RD ROLLS (Fig. 2) — The distance between the second and third rolls, where condensation of fibres takes place, MUST remain constant. Therefore the second and third rolls are set at a fixed distance from each other in a cradle and the scroll condenser is held in a fixed position between them. Scroll and rolls are set as one unit.

EASY DISTRIBUTION OF DRAFTS — Our Universal Head Gearing Unit permits intermediate draft adjustments without changing the overall draft.

These are only a few of the many "little" things that make a BIG difference.

MACHINE CO.

Textile Machinery

DIVISION **PAWTUCKET, RHODE ISLAND, U.S.A.**

BRANCH OFFICES

ATLANTA, GA.
815 CITIZENS AND SOUTHERN NATIONAL BANK BUILDING

CHARLOTTE, N. C.
1201 JOHNSTON BUILDING

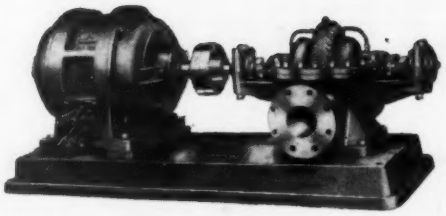
Pumps with a DIFFERENCE *that means savings for* YOU

It's no trick to design a centrifugal pump that will give *passable* service. But to give such pumps the extra measure of efficiency that saves you the most money requires skilled engineering—rigidly controlled foundry practices—plus long experience. Gardner-Denver centrifugals do a better job because they are hydraulically and mechanically *right*—because their water passages are properly proportioned—because castings are absolutely smooth. For complete information about any of the pumps shown on this page, write Gardner-Denver Company, Quincy, Illinois.

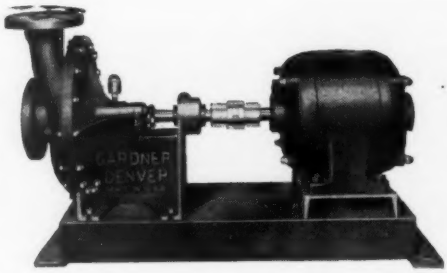
GARDNER-DENVER

SINCE 1859

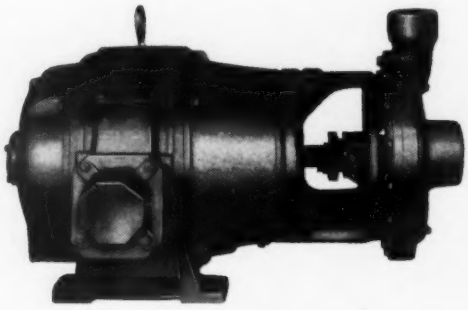
ATLANTA, GA.; BIRMINGHAM, ALA.; BOSTON, MASS.; HAZLETON, PA.; KNOXVILLE, TENN.; WASHINGTON, D. C.; NEW YORK, N. Y.; PHILADELPHIA, PA.; PITTSBURGH, PA.



Easy accessibility *is a feature of Gardner-Denver Double-Suction, Single-Stage Centrifugal Pumps. Available in sizes to cover all heads up to 300 feet. In the first year of operation, these pumps often save enough in power costs to pay for themselves and their motors.*



Low in first cost—*easy to install; Gardner-Denver Side-Suction Pumps are ideal for replacement of outmoded units in general service. Capacities up to 2.3 million gallons per day or 1600 gallons per minute can be handled at heads up to 100 feet.*



Upside down—*or right side up—these Gardner-Denver Close-Coupled Centrifugals operate efficiently—take little space—because pump and motor are combined. Gardner-Denver Close-Coupled Centrifugals are designed for capacities up to 250 gallons per minute and heads up to 250 feet.*

better SERVICE through research

Extraction apparatus, in the Textile Laboratory of the A. E. Staley Manufacturing Company, used to determine moisture and fat content of sizing formulas and size compounds.

•

Staley's completely equipped, modern laboratories—staffed by skilled chemists and highly trained technicians—are at your service... Ready to help you with your sizing problems. Every Staley representative is thoroughly familiar with the capabilities of the laboratories—knows exactly how they can serve you through analysis, comparison and recommendation.

Created in these laboratories—and under strict Control Laboratory supervision during every step of the processing—Staley's complete line of Textile Starches makes it possible for you to select the proper Staley Starch for every sizing requirement.

If you are not a Staley customer, now is the time to get acquainted with our prompt service and complete cooperation. Write, wire or phone for detailed information.

STALEY STARCHES

Staley's CORN AND SOY BEAN PRODUCTS

ATLANTA • SPARTANBURG
DALLAS • PHILADELPHIA
CHICAGO • NEW YORK
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A. E. STALEY MFG. COMPANY

DECATUR, ILLINOIS

It's Always Fair Weather at Wamsutta with AMCO EVAPORATIVE COOLING

WAMSUTTA'S fame for quality is not accidental. It results from deliberate measures to assure a superior product. Important among these advantages is an AMCO Humidification and Cooling System.

By reducing excessive temperatures and holding humidity at correct levels—an easy routine with AMCO—ideal processing "weather" prevails in every department. Also important to efficient production is greater comfort for the worker.

Relative humidity is accurately maintained by introducing atomized water spray, and the frictional heat of high speed machines is absorbed by evaporation of this moisture in conjunction with carefully controlled air-flow. No expensive changes are necessary—no air ducts to install—no jump in maintenance costs.

What an AMCO System has done for many leading mills it can do for you. An AMCO engineer will gladly show you how you can modernize your plant simply and economically for better product quality with increased output.

FEATURES OF AMCO HUMIDIFICATION AND COOLING

- Reduces excessive temperature and holds relative humidity at point best suited to fibre and process.
- Speeds production in high friction (heat) areas.
- Assures evener yarn counts and increases breaking strength.
- Gradually increases regain for good roving and consequent better spinning.
- Drafting of fibres smoother and more compact.
- Waste and fly greatly reduced.
- No cumbersome ducts to require cleaning and obstruct light.
- Easier to install—minimum disruption.
- High flexibility to meet changing room conditions.
- Minimum maintenance.
- Amco Evaporative Cooling utilizes your present humidification system.
- Increases worker comfort.

AMCO

HUMIDIFICATION and COOLING

AMERICAN MOISTENING CO. AFFILIATED WITH GRINNELL COMPANY, INC., PROVIDENCE, R. I. • BOSTON • ATLANTA • CHARLOTTE

It increases dye house output . . . makes the going easier . . . and how it lasts!

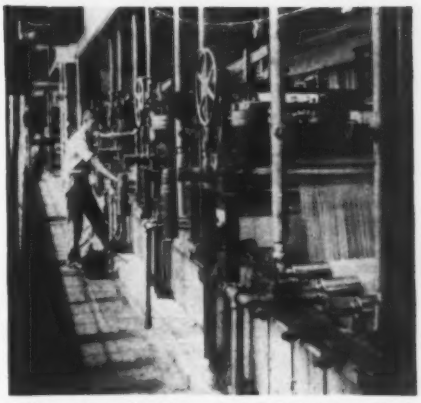
SOME of the pressure comes off mill superintendents, plant engineers and foreman when U·S·S Stainless Steel goes to work in dye house equipment.

Think what it means to be free of rust, staining and bleeding troubles. You can eliminate these causes for cloth spoilage and lost production by using Stainless Steel.

Think what it means to be able to run your machines at high speed, *safely*. To start, stop and reverse *fast*—with the least whip and jar and with minimum vibration. Stainless construction insures this by reducing weight and adding strength.

How would you like to be relieved of most of your maintenance and repair worries? To be able to keep your equipment running at top speed without frequent adjusting or getting out of order. You can, if it's built of Stainless Steel.

Stainless Steel's high resistance to corrosion, its outstanding toughness and durability and the fact that it cleans quickly, easily and thoroughly, not only ensure smoother, more profitable operation but put Stainless Steel in a class by itself when it comes to ultimate economy.



With vats and rollers of U·S·S Stainless Steel this machine has been running corduroys, spun rayons and light-weight cottons with almost no time out for cleaning. The superintendent reports, "perfect service."

Why it pays to specify and use U·S·S Stainless Steel

A *perfected*, service-tested steel, *U·S·S* Stainless is so uniform in composition, in finish and in fabricating qualities that it allows the widest latitude in design and permits the employment of the most advanced manufacturing techniques. The result—equipment that will deliver the utmost in performance.

USS STAINLESS STEEL UNITED STATES STEEL

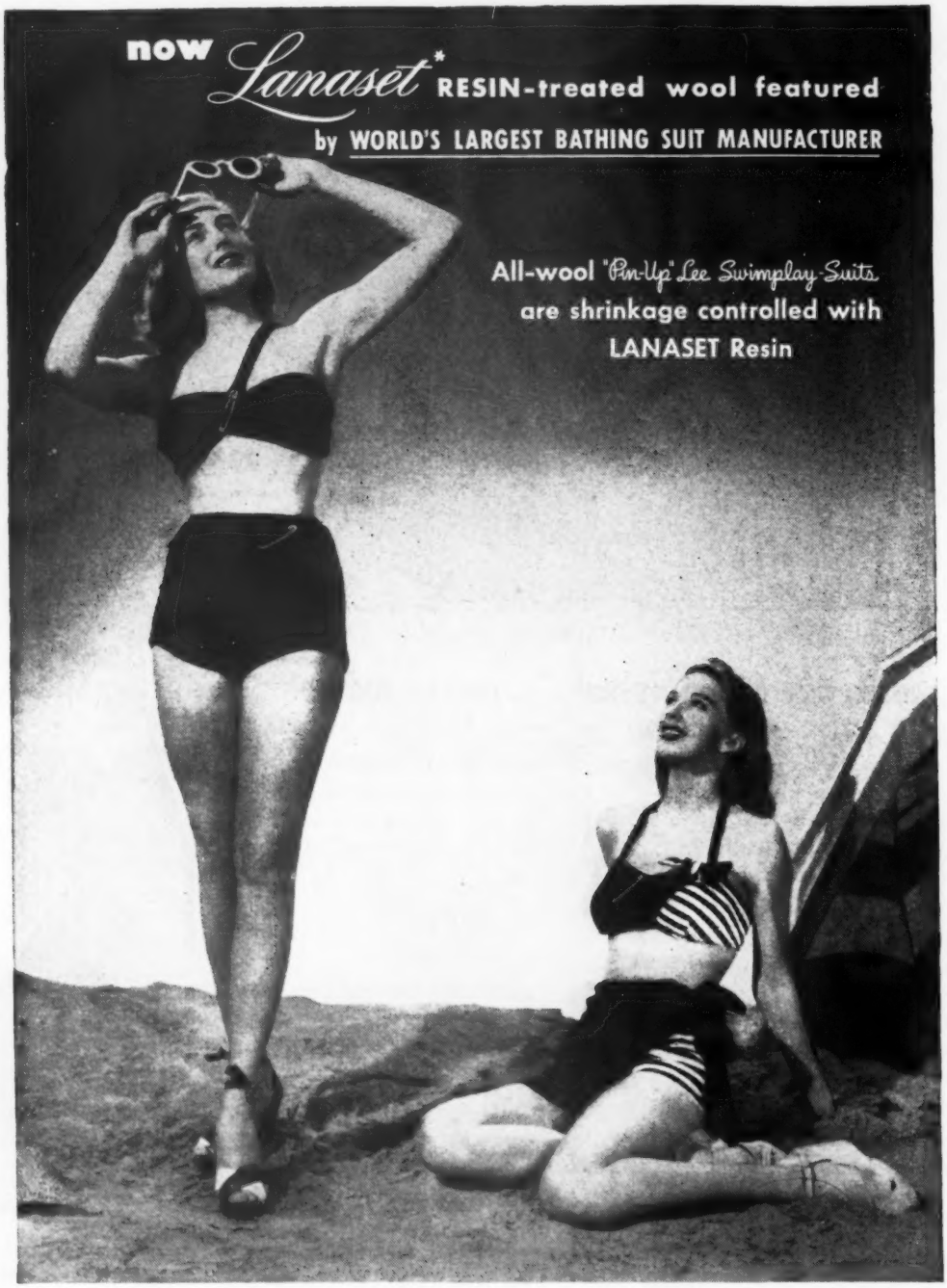
U·S·S STAINLESS STEEL

AMERICAN STEEL & WIRE COMPANY, *Cleveland, Chicago and New York*
CARNEGIE-ILLINOIS STEEL CORPORATION, *Pittsburgh and Chicago*
COLUMBIA STEEL COMPANY, *San Francisco*
NATIONAL TUBE COMPANY, *Pittsburgh*
TENNESSEE COAL, IRON & RAILROAD COMPANY, *Birmingham*
United States Steel Supply Company, Chicago, *Warehouse Distributors*
United States Steel Export Company, New York

7-338

UNITED STATES STEEL

Textile Resin


now Lanaset* RESIN-treated wool featured
by WORLD'S LARGEST BATHING SUIT MANUFACTURER
All-wool "Pin-Up" Lee Swimplay Suits
are shrinkage controlled with
LANASET Resin

A wool swim suit that shrinks is unflattering, uncomfortable, and is now unnecessary because of LANASET* Resin.

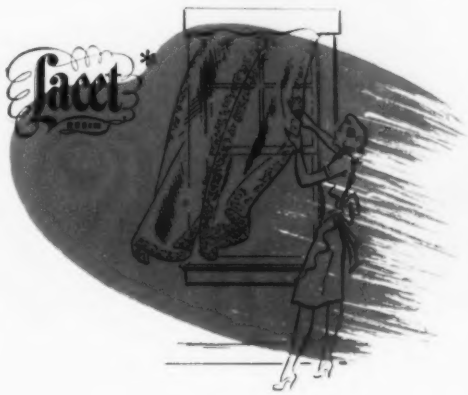
LANASET-treated woolen apparel is featured by leading stores throughout the country.

The LANASET tag is the sign of lasting washability and increased sales volume.

Topics

Lasting Crispness. Now, at last—all types of sheers, from crisp cotton dresses for children to lovely marquisette bedspreads, can be washed and still retain their crisp, new look. And SHEERSET resin gives shrinkage control by stabilizing the fabric.

Softness of Hand. Aerotex Softener H achieves a finish of appealing softness, smoothness, suppleness of drape in fine fabrics for personal apparel. It *belongs* in quality woolens, cottons and synthetic fabrics for all-purpose wear. Manufacturers find Aerotex Softener H a most dependable finish wherever superior softness is desirable.



No Ironing. Takes the "labor" out of the washing of cotton or rayon Nottingham lace curtains, as it eliminates the need for wearisome starching, framing and ironing. Curtains treated with LACET resist soil and retain their crisp, new look after numerous washings. Stretching (sagging) and shrinking are kept at a minimum.

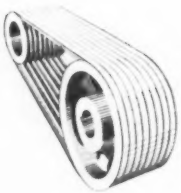
AMERICAN CYANAMID COMPANY
TEXTILE RESIN DEPARTMENT
BOUND BROOK, NEW JERSEY

New York • Boston • Philadelphia • Providence • Charlotte • Chicago

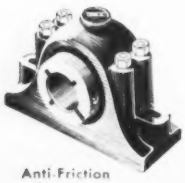
*Reg. U. S. Pat. Off.
†Trade-mark of American Cyanamid Company

ARE YOUR COSTS IN SHAPE FOR A BUYER'S MARKET?

Call the Transmissioneer



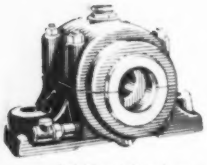
V-belt Drives



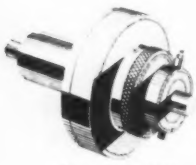
Anti-Friction Bearings

DODGE

OF MISHAWAKA, INDIANA



Babbitted Bearings



Friction Clutches

Steel Pulleys

Costs can be cut . . . machine performance improved . . . greater production obtained . . . through the correct application of *your power to your job.*

Call the Transmissioneer. He has the facts about new developments by Dodge of Mishawaka—products that can cut costs and help keep production rolling profitably. In the fields, on the sea, in the air, and beneath the earth, as well as in the mills and factories, Dodge power transmission equipment is contributing greatly to the production miracles which are now the commonly accepted achievements of American industry.

Graduate of an intensive factory course, the Transmissioneer is a specialist in applying power to the job. He is qualified to analyze the problems of power transmission in your plant, or as applied to your product. He's prepared to recommend correct equipment. Call him in, without obligation, to discuss your needs. You'll find him listed under "Power Transmission" in the classified phone directory.

DODGE MANUFACTURING CORPORATION, MISHAWAKA, INDIANA

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NAME PLATES

FOR YOUR NAME PLATE REQUIREMENTS, WRITE OUR SUBSIDIARY, ETCHING COMPANY OF AMERICA, 1520 MONTANA STREET, CHICAGO 14, ILLINOIS

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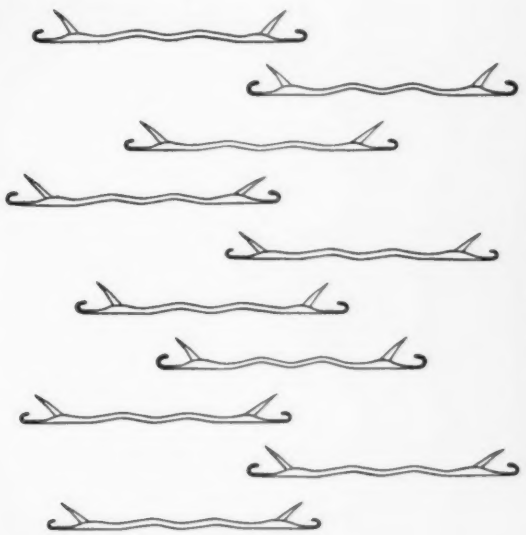
THERE ARE TORRINGTON NEEDLES specifically designed for every type of knitting. Those reproduced below, for example, are used extensively by mills producing top quality knitted sports goods for women.

Whatever your knitting requirements, you'll find the machine-made, machine-controlled accuracy and uniformity of Torrington Needles a dependable aid in consistent production of quality merchandise.

...Due to the present high demand for Torrington Needles, some of the Needle Types illustrated may not be available for immediate shipment from stock.



THE TORRINGTON COMPANY

Torrington, Conn., U. S. A. • Established 1866

Branches: New York • Philadelphia • Chicago
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There's a **TORRINGTON** **LATCH NEEDLE** *for every type of Knitting!*

A complete selection of sizes . . .

just as a set of twist drills meets a variety of size requirements, the wide range of sizes of Torrington *Needle* Bearings facilitates their selection,

To meet <u>your</u> design requirement . . .

If you are seeking an anti-friction bearing with high radial capacity . . . *and* a low coefficient of friction . . . *and* efficient lubrication . . . *and* low installation and maintenance costs . . . then a Torrington *Needle* Bearing may well be your logical choice. Our engineering department will gladly recommend the correct size and type to meet your specific needs.

THE TORRINGTON COMPANY

TORRINGTON, CONN. SOUTH BEND 21, IND.

Offices in All Principal Cities

TORRINGTON BEARINGS

• NEEDLE • SPHERICAL ROLLER • STRAIGHT ROLLER • TAPERED ROLLER • BALL •

THERE'S PLENTY OF ROOM IN THE BALCONY!

"Main floor" storage is expensive — especially when overhead storage space is wasted. In many operations, outmoded handling methods prevent full utilization of the existing storage area. In many other operations, Towmotor Fork Lift Trucks have doubled, even tripled, storage capacity through high stacking of materials and products.

Let Towmotor show you how to "pack the house," convert waste space into profitable warehouse space. First step? Send for a Pocket Catalog describing the complete line of Towmotor Fork Lift Trucks and Accessories.

SEND for special bulletins describing the **TOWMOTOR**

UNLOADER
UPENDER • SCOOP
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EXTENSION BACKREST
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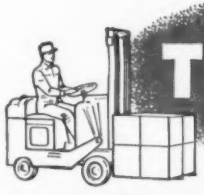
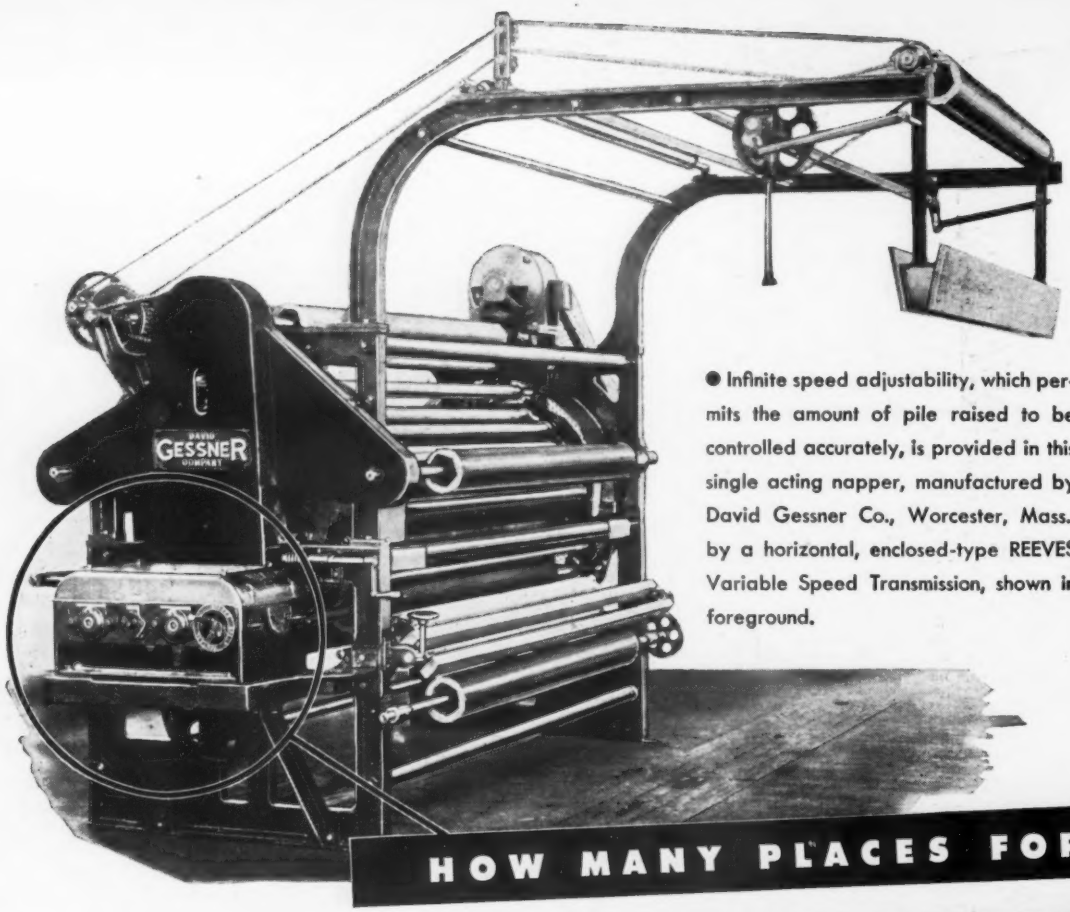
TOWMOTOR CORPORATION
Division 22, 1226 East 152nd St., Cleveland 10, Ohio



TOWMOTOR THE ONE-MAN-GANG **FORK LIFT TRUCKS *and* TRACTORS**

RECEIVING • PROCESSING • STORAGE • DISTRIBUTION



● Infinite speed adjustability, which permits the amount of pile raised to be controlled accurately, is provided in this single acting napper, manufactured by David Gessner Co., Worcester, Mass., by a horizontal, enclosed-type REEVES Variable Speed Transmission, shown in foreground.

HOW MANY PLACES FOR REEVES SPEED CONTROL IN YOUR MILL?

Wherever you have machines processing yarn or cloth that differs in texture, weight or moisture content . . . wherever you have an operation affected by variations in temperature, humidity or the operator's skill . . . there you need REEVES Speed Control.

Applied to beamers, warpers, slashers, dry cans, mangles, dryers, nappers, range finishers and many other textile machines, REEVES Variable Speed Drives provide the right speed for every job under every changing condition—accurately, instantly and without shutting down. The result, as demonstrated by thousands of installations, is continuous, profitable production . . . uniform and improved quality of product . . . reduced manufacturing cost.

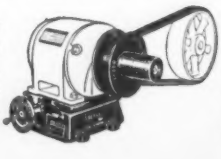
The REEVES line includes three basic units which are manufactured in a wide range of designs, sizes and speed ratios . . . with manual, hydraulic, mechanical or electric remote control. A REEVES engineer with a broad experience in textile mill operations and applications will be glad to help you select the REEVES equipment best suited to your needs. Have him call soon. Meanwhile, write for the 96-page catalog describing the entire line. Ask for W-450.

REEVES PULLEY COMPANY • COLUMBUS, INDIANA

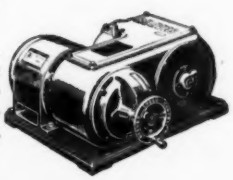
THE THREE BASIC REEVES SPEED CONTROL UNITS

VARIABLE SPEED TRANSMISSION for providing infinite, accurate speed flexibility over a wide range—2:1 to 16:1. Sizes—fractional to 87 hp.

VARI-SPEED MOTOR PULLEY converts any standard constant speed motor to a variable speed drive within 4:1 ratio. Sizes to 15 hp.



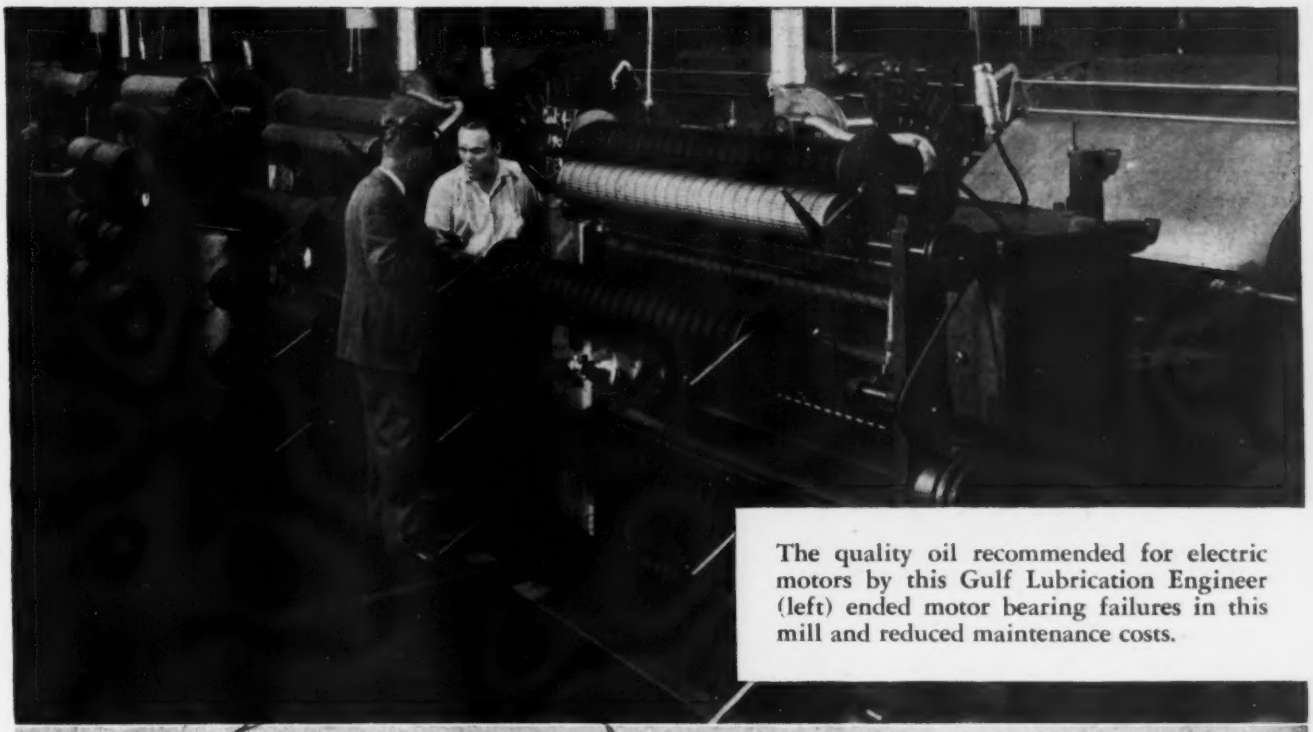
MOTODRIVE combines motor, speed varying mechanism and reduction gears in single compact unit. Speed variations 2:1 to 6:1 inclusive. Sizes to 15 hp.



Accurate Variable

REEVES Speed Control

Gives the Right Speed for Every Job!



The quality oil recommended for electric motors by this Gulf Lubrication Engineer (left) ended motor bearing failures in this mill and reduced maintenance costs.

less wear

greater efficiency

lower maintenance costs

when the Gulf Lubrication Engineer is "in the picture"

HAVE you struck the "pay dirt" that's frequently buried in maintenance costs? Let a Gulf Lubrication Engineer help you "dig in" and find opportunities for dollar savings.

Gulf Lubrication Engineers are specialists in scientific textile mill lubrication. Through training and experience in the selection of the most suitable lubricants and the most efficient means of application, they help to reduce wear, improve efficiency, and cut maintenance and power costs.

The services of a Gulf Lubrication Engineer—and the Gulf line of more than 400 quality oils and greases—are available to you through 1200 warehouses located in 30 states from Maine to New Mexico. Write, wire, or phone your nearest Gulf office today.

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Piping jobs move faster when all materials are CRANE

You save time on piping specifications! You save time in ordering materials! You save on installation time! Standardizing on Crane equipment does all that—and more—for you.

Take this air conditioning system, for example. Everything in piping for the installation is in the Crane line. Good, dependable materials down to the last item. From design to erection to maintenance, an all-Crane job moves faster—with better performance assured by this 3-way advantage—

ONE SOURCE OF SUPPLY gives you the world's most complete selection of valves, fittings, pipe, accessories and fabricated piping for all power, process, and general services.

ONE RESPONSIBILITY for piping materials helps you to get the best installation and to avoid needless delays on jobs.

OUTSTANDING QUALITY in every item assures uniformly high performance in every part of piping systems.

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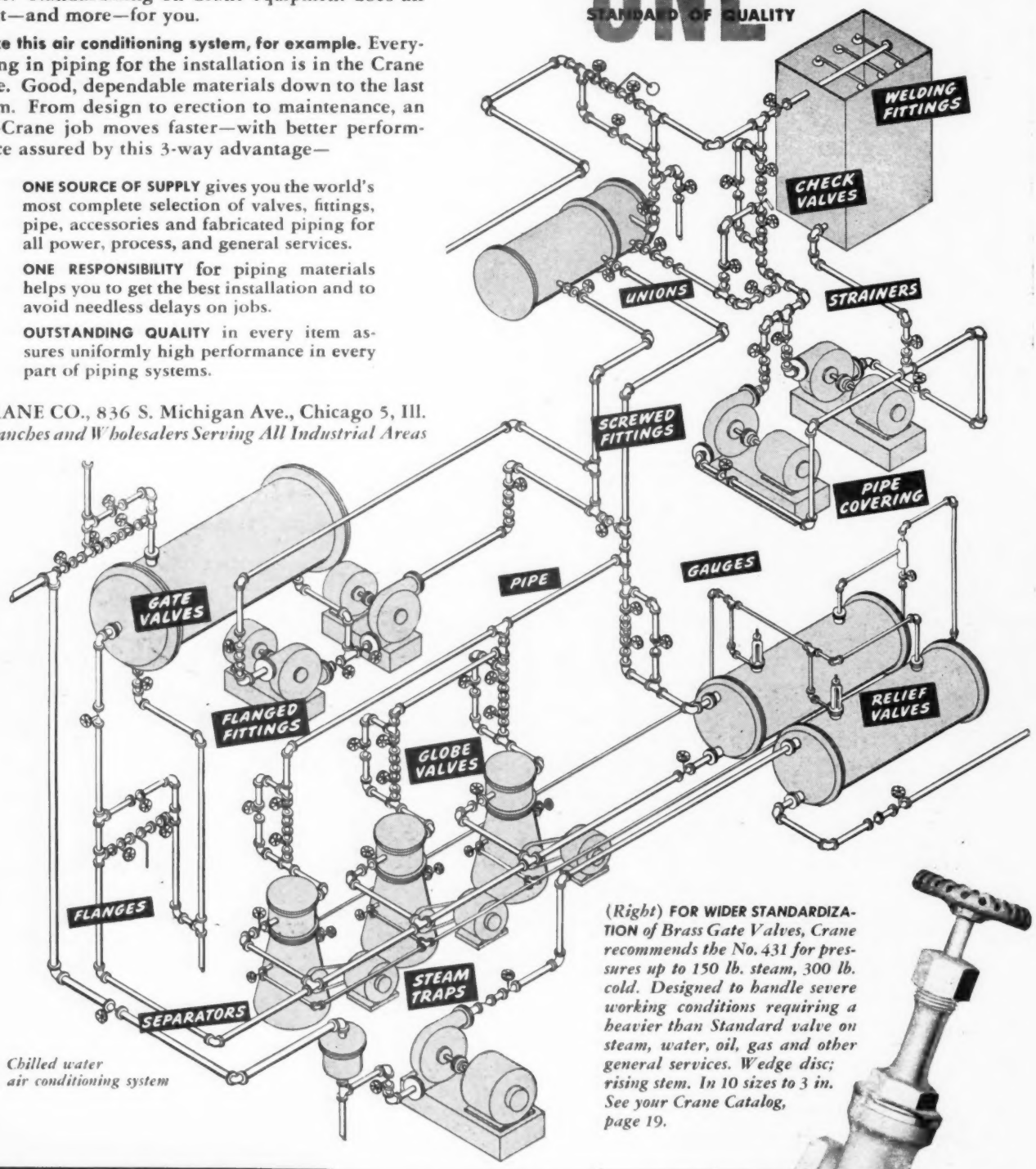
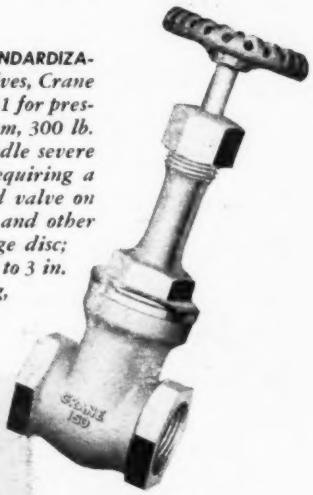


Chilled water air conditioning system



(Right) **FOR WIDER STANDARDIZATION** *of Brass Gate Valves, Crane recommends the No. 431 for pressures up to 150 lb. steam, 300 lb. cold. Designed to handle severe working conditions requiring a heavier than Standard valve on steam, water, oil, gas and other general services. Wedge disc; rising stem. In 10 sizes to 3 in. See your Crane Catalog, page 19.*

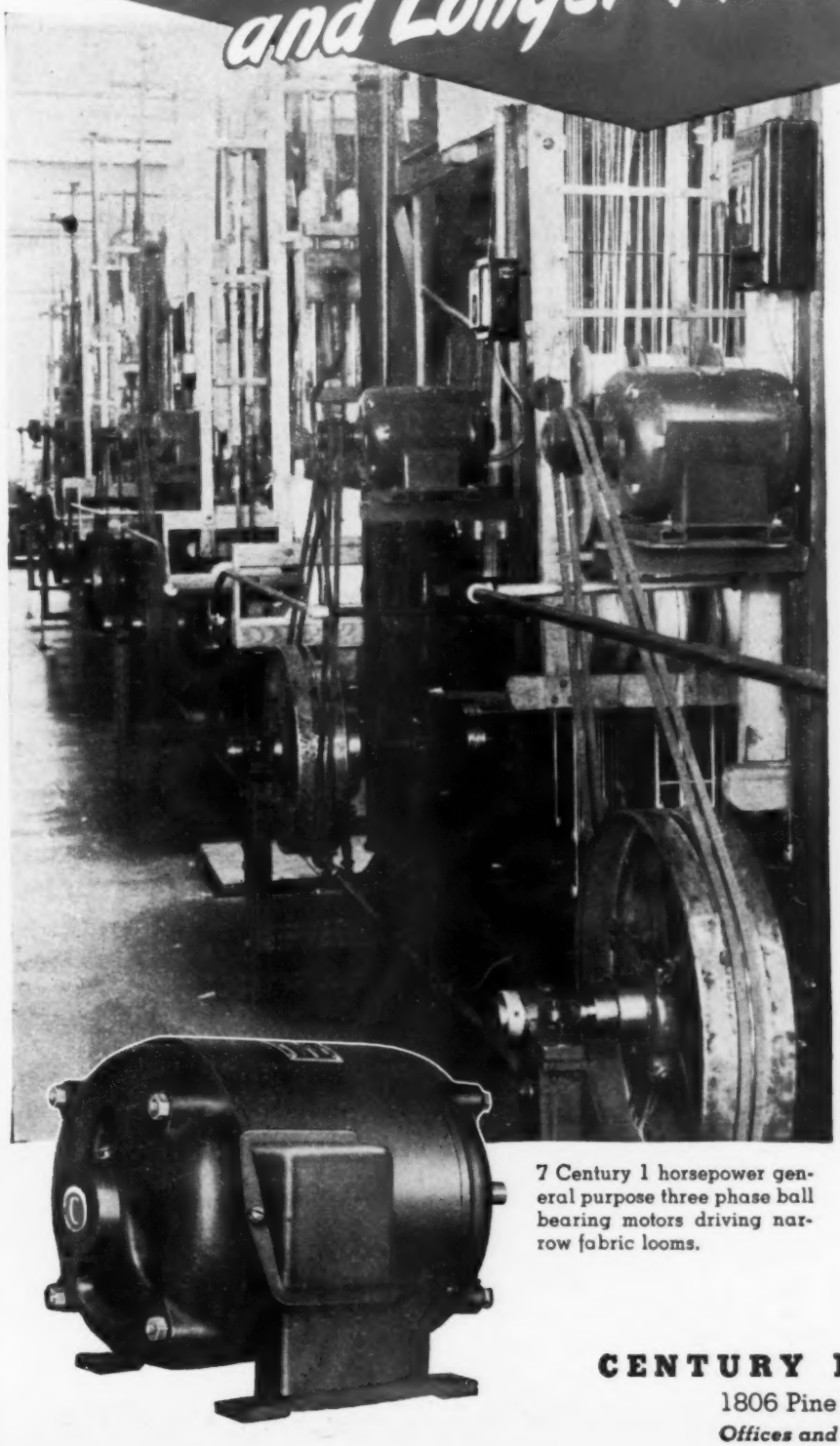
EVERYTHING FROM . . .

VALVES • FITTINGS
PIPE • PLUMBING
AND HEATING

CRANE

FOR EVERY PIPING SYSTEM

The Right CENTURY Motor — Correctly Protected — *Means Better Performance and Longer Motor Life*



7 Century 1 horsepower general purpose three phase ball bearing motors driving narrow fabric looms.

Century builds a wide range of electric motors, both integral and fractional, to meet the requirements of industrial production and commercial needs. The wide variety of electrical characteristics may be in open, splash proof, totally enclosed fan cooled or explosion proof frames — for multispeed or single speed operation.

Many of these motors are ideally suited for such applications as pumps, conveyors, agitators, washers, dryers, etc. The right Century motors to meet the load requirements — plus the right motor frame to protect the vital parts from surrounding hazards is a combination that will give you top performance.

Specify Century Motors for all your electric power requirements

Century C MOTORS

CENTURY ELECTRIC COMPANY

1806 Pine Street • St. Louis 3, Mo.

Offices and Stock Points in Principal Cities

512

Go "National" for Lead PIPE

What kind of pipe do you need...to fight acid-corrosion?

1 All-Lead Pipe? National Lead's Chemical Lead Pipe has a long record of successful applications. And there are definite reasons for this. First, it is made of practically pure lead, which is free from bismuth and contains a small amount of copper to increase corrosion resistance. Second, it is fabricated by an extrusion process which assures uniform wall thickness, free flow and freedom from porous or defective spots.

***Whatever your problem,** National Lead has the lead pipe you need and a full line of fittings to go with it. Here's a lead discharge pipe used on a concrete settling tank.*

That's our *regular* lead pipe. It has become "standard" throughout industry. But, maybe you need *extra* corrosion resistance at high temperatures . . . *greater* tensile strength and toughness . . . *higher* endurance to vibratory stress. Our Tellurium Lead Pipe fills the bill there.

Or, maybe your *extra* problem is erosion. Then, you should consider our Antimonial Lead Pipe, made with a base of either Chemical or Tellurium Lead. By adding 6% of antimony we almost double the tensile strength and greatly increase hardness and stiffness.

2 Cold Expanded Lead-Lined Pipe? When you need pipe with the strength of iron or steel, we give it to you . . . *with a lead lining.* Our "United" Lead-lined Cast Iron or Steel Pipe has proved highly serviceable under severe conditions. It has the outer strength you need to stand pressure or other mechanical stress; the inner stamina to resist corrosion.

The lead lining is formed in continuous lengths of seamless pipe, then cold expanded against the inside of the iron or steel tube. You get a tight fit and a smooth, uniform lining, free of defects. Of course, all iron and steel pipe used meets ASTM standards.

***The strength of steel** plus the endurance of lead. You get both with "United" Lead-lined Pipe.*

3 "United Tubond" Lead-Lined Pipe? For extremes of temperature, pressure, vacuum or vibration, investigate our "United Tubond" Lead-lined Pipe. This is steel or wrought iron pipe with its lead lining permanently bonded to the ferrous metal. No separation or creep is possible. The illustration below proves the toughness of this bond.

All our lead-lined pipe is available in flanged sections with the lead lining carried over the face of the recessed flange. This insures a positive lead-to-lead joint at each flange, eliminating any danger of leakage.

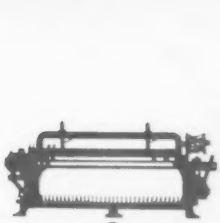
***Permanently bonded!** Even violent twisting of this section of "Tubond" lead-lined steel pipe couldn't break the bond.*

No Matter What Your Acid-Handling Problem . . .

Go "National" for Lead

National Lead is ready to consult with you and supply any type of lead pipe . . . valves . . . sheet . . . lead-lined or lead-covered equipment . . . even complete acid recovery plants. And behind every National Lead product . . . every National Lead recommendation . . . are years of experience and many important installations in every field handling corrosive liquids and gases.

NATIONAL LEAD COMPANY
111 BROADWAY, NEW YORK 6, N. Y.
Offices and Plants in Principal Cities and **Canada**



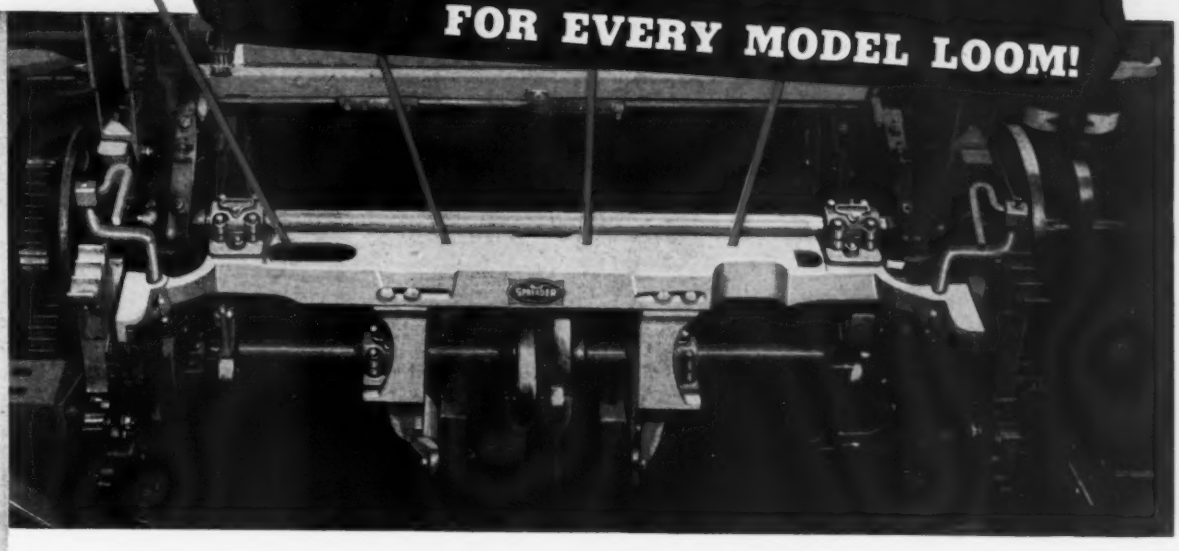
WIDE

NARROW

STANDARD

or SPECIAL

THERE'S A HUNT SPREADER FOR EVERY MODEL LOOM!



MORE PRODUCTION from a great variety of looms has been accomplished in more than 200 mills from Maine to Texas, where patented Hunt Spreaders have been installed on looms of all makes, models, and ages.

MORE STABILITY through reduced vibration allowed speed increases of from 12 up to as many as 36 picks-per-minute.

MORE CONTINUOUS and trouble-free operation produced better quality fabrics—cotton, wool and rayon—at a lower cost and a higher profit per yard.

By the addition of Hunt Spreader "backbones" to present looms these mills are assured of longer loom life and more dependable day-to-day operation.

You, too, can achieve the same results by installing patented Hunt Spreaders in your weave room. Be it fifty looms or five hundred, our factory-trained erectors can make the installations with slight interruption of production.

Write or wire today. It's likely we can arrange for you to see a Hunt Spreader installation in your vicinity.

NEW 1947 CATALOG . . . . .

You will want this catalog for your files. In it you will find illustrations and complete descriptions of all Hunt Textile Equipment. Write for your copy today.

Hunt SPREADERS

• ADD YEARS TO LOOM LIFE •

Hunt Equipment is Manufactured and Distributed by

MOUNTAIN CITY FOUNDRY & MACHINE CO.

GREENVILLE, SOUTH CAROLINA

WHEN YOU ARE IN THE MIDDLE...

here's a man who can help you out

WHEN you are in the middle—between bad-running spinning or twisting and a management that is pressing for better production and quality—it's a good time to talk to a Victor Service Engineer.

He has been in on thousands of spinning and twisting problems, and seen them through to a successful solution. He can not only recommend the right traveler for the job, but can often make other suggestions for improving yarn quality and production that will change front office complaints to compliments.

Now, in the face of increasing competition for peacetime markets, you need his resourceful cooperation—the friendly, result-getting Victor service that has made Victor Travelers standard for over 8,000,000 spindles of spinning and twisting throughout the industry.

New fibers, new blends that increase your problems are seldom new to the Victor Service Engineer. You find him ready to share his important information on any fiber. Write, wire or phone the nearest Victor office . . . for prompt service.

•

Keep a Step ahead with

VICTOR Ring Travelers

VICTOR RING TRAVELER COMPANY

PROVIDENCE, R. I. . . . . 20 Mathewson St. . . . . Tel. Dexter 0737

GASTONIA, N. C. . . . . 358-364 West Main Ave. . . . . Tel. 247

Saran BY NATIONAL

MONOFILAMENTS FOR BETTER UPHOLSTERY FABRICS

THE smartest public places are adding a new drawing-card to their bill of fare! It's upholstery woven of SARAN monofilaments . . . colorful, smart and exceedingly practical.

In a range of glorious colors, from soft pastels to vivid hues, SARAN may be woven into a variety of textures and patterns to create an interior decorator's dream for hotels, restaurants, theatres and other public places.

Fabrics woven of SARAN monofilaments won't stretch and sag in ordinary usage. They resist dirt, stains, alcohol and most acids. Consequently, they reduce maintenance costs to a minimum.

Public places become show places that attract and hold new customers with the installation of upholstery woven of SARAN BY NATIONAL.

■ SARAN BY NATIONAL denotes monofilaments, rattan and tape produced from Saran (vinylidene chloride resin by Dow) and supplied to mills, weavers and other fabricators for specific end uses.

The NATIONAL Plastic Products Company

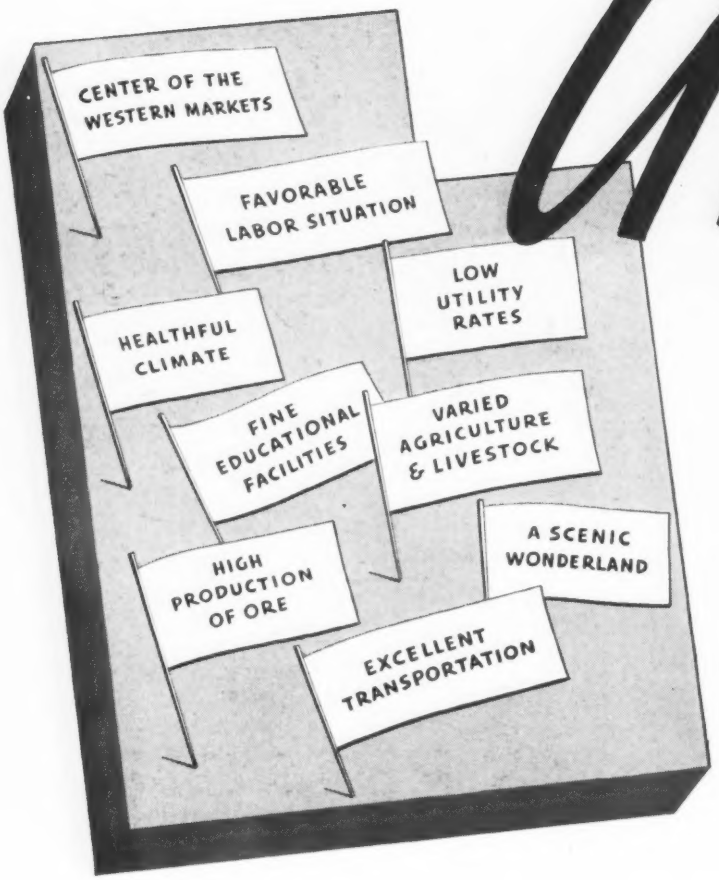
ODENTON • MARYLAND

NEW YORK: EMPIRE STATE BUILDING • LOS ANGELES: BANKERS BUILDING

UNION PACIFIC

TREASURE MAP OF INDUSTRY

Utah *



Herbert B. Maw, Governor of Utah, tells his state's story.

"Nature was kind to Utah. Deposited within her borders are rich and varied sources of coal and iron, lead and zinc, copper, silver and gold. These and many other industrial attributes are part and parcel of the undeveloped sections of this state.

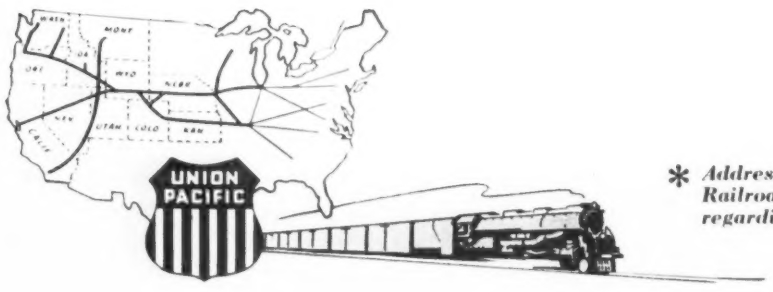
"A gigantic steel industry which can serve the west signals our industrial ambition. It will form the nucleus of a network of associated industries.

"Our need now is people and leadership to share in the prosperity of a western empire. Our natural resources are practically untouched. They assure a long life to an industrial future which is just now beginning. Utah invites new and expanding industry to investigate opportunities here before deciding upon new locations."

★ ★ ★

For industrial resources and opportunities, look to Utah. For unexcelled rail transportation . . .

* *One of a series of advertisements based on industrial opportunities in the states served by the Union Pacific Railroad.*



be Specific – say "Union Pacific"

* *Address Industrial Department, Union Pacific Railroad, Omaha 2, Nebraska, for information regarding industrial sites.*

UNION PACIFIC RAILROAD

THE STRATEGIC MIDDLE ROUTE

6 PARTS ALUMINUM

Auto Heeler made by Robert Reiner, Inc., Weehawken, New Jersey

FOR THESE 3 REASONS:

1 ***High Speed***—Lightweight Alcoa Aluminum in textile machinery parts means low inertia on reverse motions, fast stops and starts. Reduces vibration, a major cause for machinery going out of adjustment.

2 ***Low Maintenance***—Because the high strength of Alcoa Aluminum can take the pounding of equipment running at high speeds, there is less fixing and replacing of parts, lower maintenance costs.

3 ***Long Life***—Aluminum's high resistance to corrosion assures longer life and better appearance of textile machinery. Aluminum protects textiles against stains during manufacture, for condensate produces no rust to drop down and cause seconds.

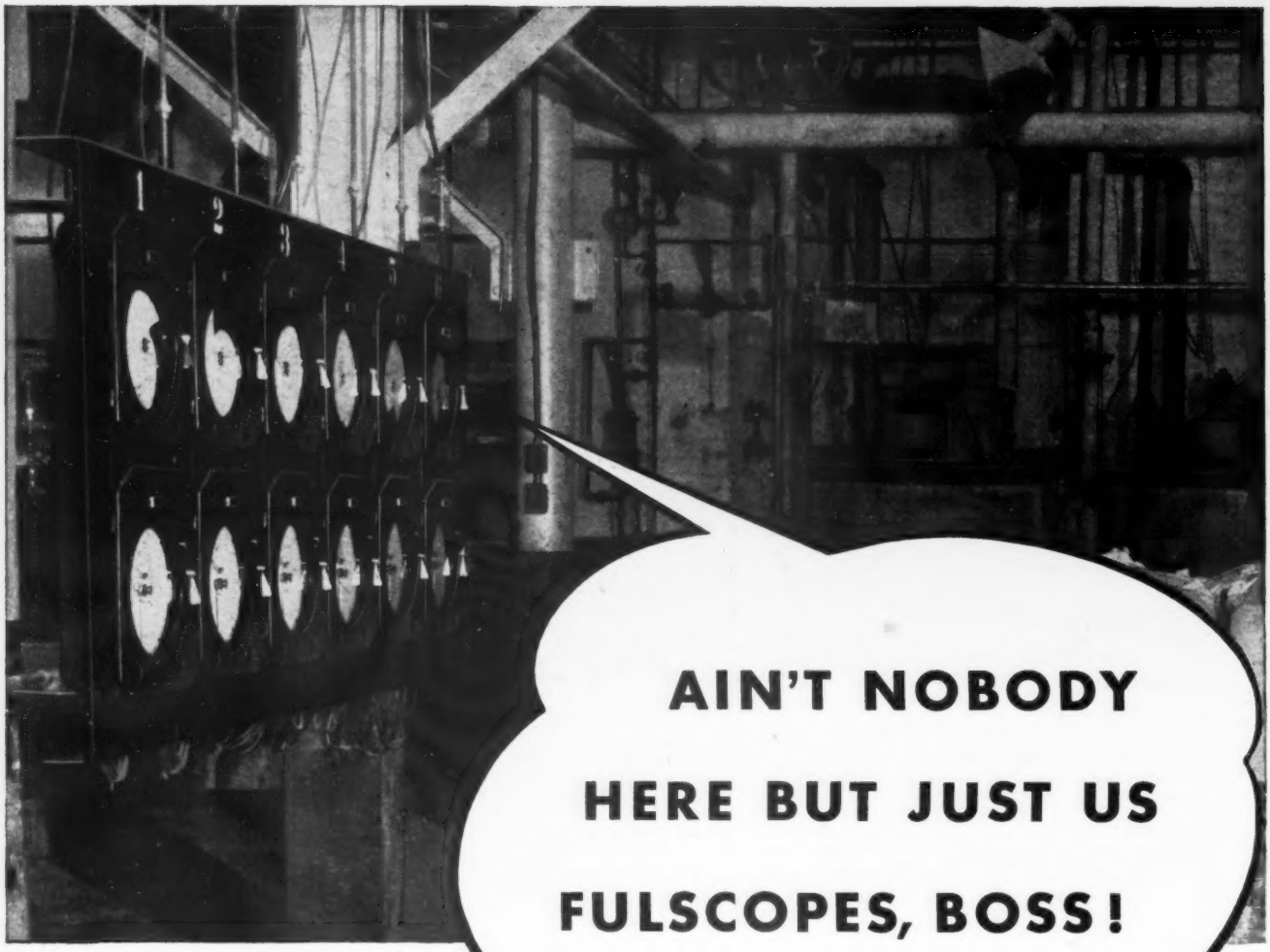
When you're buying new equipment, ask your supplier, "Is it made of Alcoa Aluminum?" If he says, "Yes" . . . then it's the best buy. ALUMINUM COMPANY OF AMERICA, 1942 Gulf Building, Pittsburgh 19, Penna.

MORE people want MORE aluminum for MORE uses than ever

ALCOA FIRST IN **ALUMINUM**

ALCOA ALUMINUM

IN EVERY COMMERCIAL FORM



YEP, the operator has just loaded the six size cooking kettles (of which two are shown in right background), pushed the starter buttons, and stepped out of the picture. He's letting this panel of Taylor Fulscope Time Schedule Controllers carry out the whole cooking operation *automatically*.

This scene in one of the south's largest denim mills shows how Taylor Accuracy is helping to keep quality up and costs down. Once the ideal cooking schedule is determined, the Taylor control system faithfully reproduces each succeeding batch of size. It prevents overcooking and overboiling and insures uniformity. And the dual-case construction of each Fulscope permits easy accessibility to both control mechanism and cam and trim mechanisms.

This system is only the first step toward automatic control of the entire slashing operation. Ask your Taylor Field Engineer for further information on our control systems for all four steps: *size cooking*, *storage kettle temperature control*, *size box level control*, and finally, *slasher cylinder control*. Or write Taylor Instrument Companies, Rochester, N. Y., or Toronto, Canada.

Instruments for indicating, recording, and controlling temperature, pressure, humidity, flow and liquid level.

Taylor Instruments
MEAN
ACCURACY FIRST
IN HOME AND INDUSTRY

Designed with a FORWARD TILT

ADDITIONAL ADVANTAGES

1. Keep their shape.
2. "Stay put" on stick.
3. Easy to install—fit the stick.
4. Made of *specially* woven fabric.
5. Roughness reduced to absolute minimum.
6. All pickers uniform in size.
7. Loom can be boxed the same at all times.
8. Jerked-in fillings are reduced to a minimum.
9. Cuts picker costs as much as 50%.
10. Only picker built to stand pounding of high-speed loom.

Dayton Thorobred De Luxe Loop Pickers have the specially-designed picker stick hole with the forward tilt. Purpose of this molded, tapered hole is to allow the picker sufficient tilt so that it will be fairly horizontal when it strikes the shuttle. If it weren't tilted, but put squarely on the picker stick, *it would strike the shuttle on an angle.* But with Dayton design, the shuttle strikes the picker fair and square . . . the picker is not pushed up on the stick or beaten out of shape.

Fabric used in Dayton Thorobred De Luxe Loop Pickers must meet extremely rigid specifications. A special process of molding practically eliminates roughness, leaving sides smooth, with corners rounded wherever possible. Too, Dayton Thorobred De Luxe Loop Pickers have no rivets, are easy to install and fit both right and left sticks. For further information, write to Dayton Rubber, Dayton, Ohio, or

TEXTILE PRODUCTS DIVISION
Dayton Rubber
Main Sales Office: Woodside Building, Greenville, S. C.
Factory: Waynesville, N. C.

THESE *Mill Proved* PRODUCTS WILL SAVE YOU TIME, MONEY AND MATERIALS

BOX LOOM PICKERS · BOX LOOM PICKER BUMPERS · CONE BASE PADS · FROG AND LOOM BUMPERS · HOLD-UP STRAPS · LONG DRAFT APRONS · LOOP PICKERS · LUG STRAPS · ROLL COVERINGS · RUB APRONS · SLASHER ROLLS · TAKE-UP ROLL COVERING · TEMPLE ROLL TUBING · VIBRATION DAMPENERS · WOOLEN AND WORSTED COTS

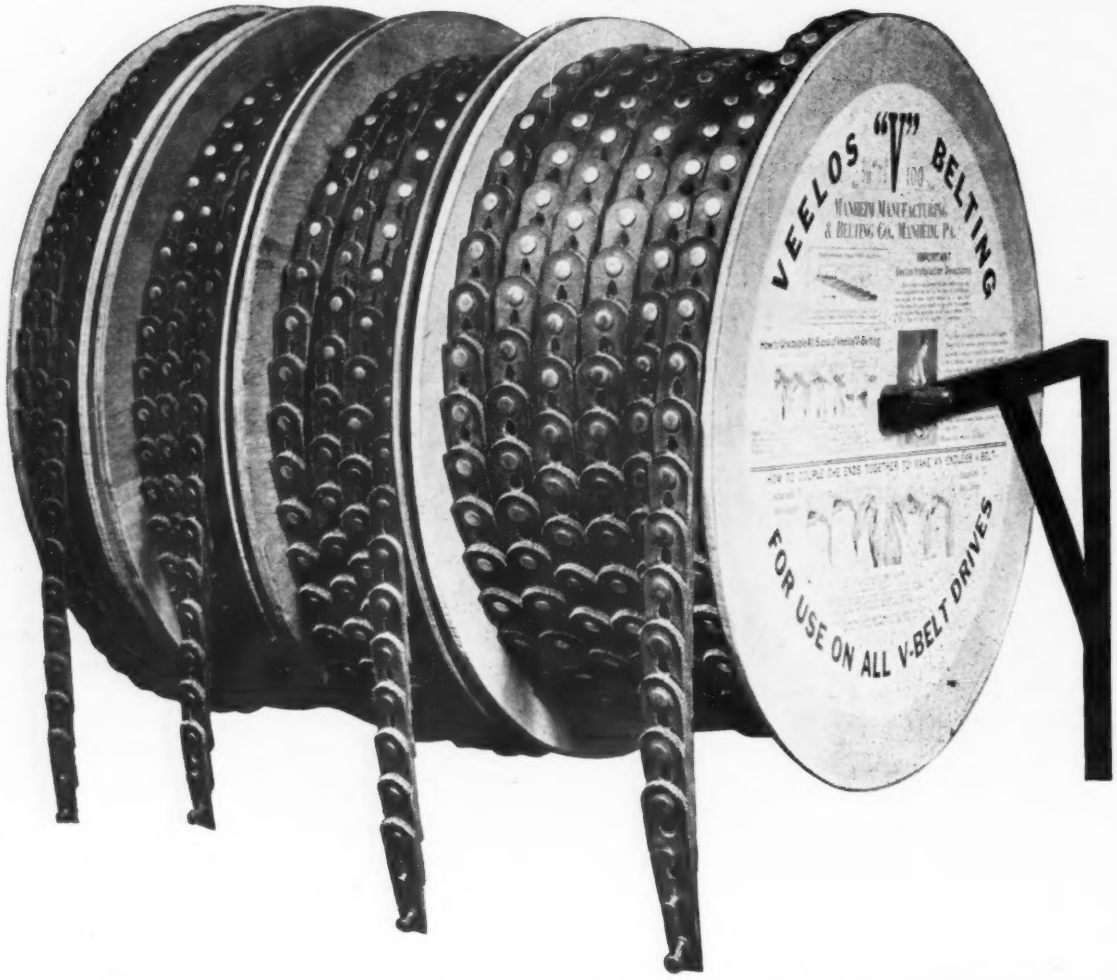
Dayton Rubber

THE MARK OF TECHNICAL EXCELLENCE IN NATURAL AND SYNTHETIC RUBBER

Waynesville, N. C. plant, devoted exclusively to manufacturing textile products designed to help you produce finer textiles more economically.

Your COMPLETE V-Belt Inventory

can be as small (or smaller) than this!



You can replace 316 sizes of endless V-belt with only 4 REELS OF VEELOS

PERHAPS you do not need 4 reels. Maybe just one reel of Veelos will provide you with a complete V-belt inventory. For Veelos, the link V-belt, is supplied on reels to provide replacements for any length drive. You don't have to stock a complicated conglomeration of many sized endless V-belts. Consequently, when you use Veelos, your costs dwindle . . . stock records are simplified . . . obsolescence and deterioration of spare belts are eliminated.

Compact — 100-foot reels of Veelos save considerable storage space. Handy-belt replacements of any desired length are always available, easy to locate, quickly uncoupled, made endless and installed.

Veelos is available in all standard sizes . . . fits all standard grooves — perfectly. Avail yourself of the real belt savings afforded by Veelos on reels.

Over 300 Veelos distributors and sales engineers located in principal cities to serve you.

MANHEIM MANUFACTURING & BELTING CO., MANHEIM, PA.

VEELOS
THE LINK
V-BELT

Adjustable to any Length
Adaptable to any Drive

Tested, Proved and Adopted by American Industry

"REDUCED DRAG

...with Tycol spindle oil"

TYCOL
INDUSTRIAL LUBRICANTS

Pittsburgh • Philadelphia
Boston • Charlotte, N. C.

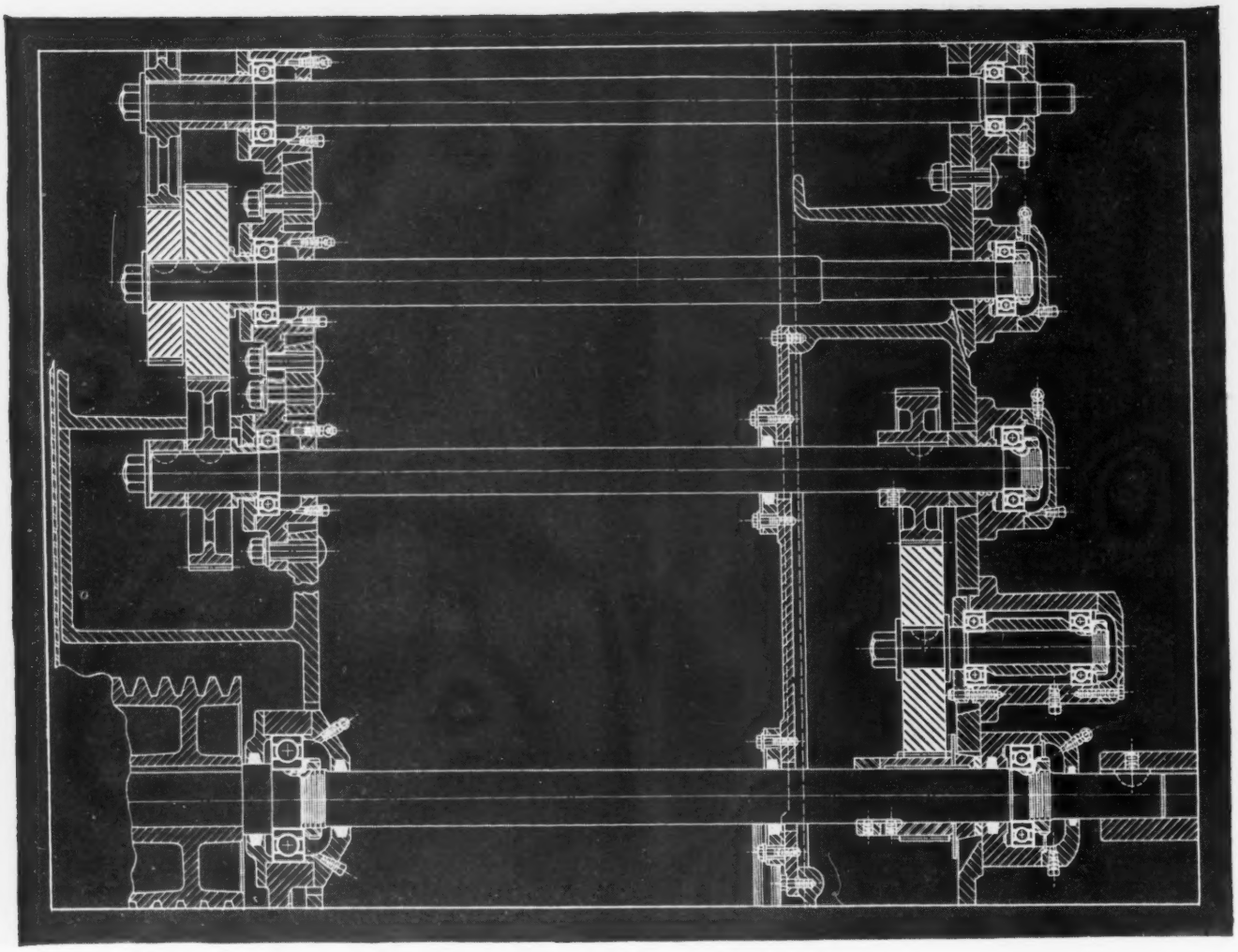
TIDE WATER ASSOCIATED OIL COMPANY
17 BATTERY PLACE · NEW YORK 4, N. Y.

"Not a single tube lost . . .
Reduces spindle drag . . .
Reduces bolster losses . . .
Steps up production . . .
Cuts down on maintenance costs . . ."

— says a textile mill operator. "With Tycol Spindle Oil," he goes on, "we're able to operate continuously at top speed—and we don't have to worry about the oil losing its body at operating temperatures."

For further information about Tycol Textile Oils, get in touch with your nearest Tide Water Associated office.

LUBRICATION—"ENGINEERED TO FIT THE JOB"



Tolerance:
DOWN TO 1% OF "NOTHING"

PRECISION hangs literally by a thread in an amazing new textile machine developed by the Whitin Machine Works. It's a mammoth synthetic thread twister which does a "trick" that could well be the envy of any machine tool designer. It has to stretch a thread to a uniform .002 of an inch diameter and hold that diameter to within a 1% tolerance down a 40-foot line of spindles.

Relative velocity of "feed rolls" and "draw rolls" which do the stretching must remain absolutely consiant. That took the kind of precision designing and manufacturing for which Whitin is famous, a train of thirteen extremely accurate helical gears and, of course, absolutely precise concentricity of shafts. That called for real teamwork with bearings . . . with a special breed of Fafnir Bearings . . . Fafnir Extra Precision Ball Bearings. These ball bearings are made by highly trained operators on special equipment controlled by elaborate inspection devices. All tolerances on diameters and eccentricities are held to unbelievably close limits.

More than anything else, this kind of precision manufacturing took the teamwork of the manufacturer, the Fellows Gear Shaper Company and the Fafnir Bearing Engineers. It's the mind-to-mind way Fafnir likes to work and the way of working that more and more manufacturers seem to prefer. The Fafnir Bearing Company New Britain, Connecticut.

FAFNIR BALL BEARINGS

MOST COMPLETE LINE IN AMERICA

Pails that sail through CONTAMINATION PROBLEMS

SAFETY FOR SENSITIVE PRODUCTS: Rustproof and corrosion-resistant, these long-lasting Inconel pails assure top protection against metallic contamination. Made and stocked in 12-14-16-20 quart sizes.

Ordinary pails? Not by a long shot!

They're in a class by themselves.

They stay bright and clean. They stay smooth and sturdy. They put an end to metallic contamination of dyes, sizing and bleaches. And they'll be on the job long after ordinary pails have hit the scrap heap.

Why?

Because they're made of solid Inconel*. This Nickel Chromium Alloy is especially suitable for acid dyeing as well as for the application of diazotized and developed colors and sulfur colors. It resists corrosion by dilute hypochlorites, sizing or other compounds and solutions used to impregnate fabrics.

Easy to clean and keep clean, Inconel—like all high Nickel Alloys—can never rust. It's the same all the way through. There's no coating to chip or crack, nothing to wear away. And it has the strength and toughness to take plenty of slamming around.

Durable, all-welded Inconel pails are made by the ALLCRAFT MANUFACTURING COMPANY, INC. Because of their long life, ALLCRAFT Inconel pails are the most economical you can buy; the protection they afford against metallic contamination makes them the safest you can use.

*Reg. U. S. Pat. Off.

INCO TRADE MARK **INCONEL**

...80 NICKEL — 14 CHROMIUM

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York 5, N. Y.

FOR FURTHER INFORMATION—MAIL COUPON

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York 5, N. Y.

Please tell me where I can obtain ALLCRAFT *Inconel pails.*

Name.....

Company.....*Title*.....

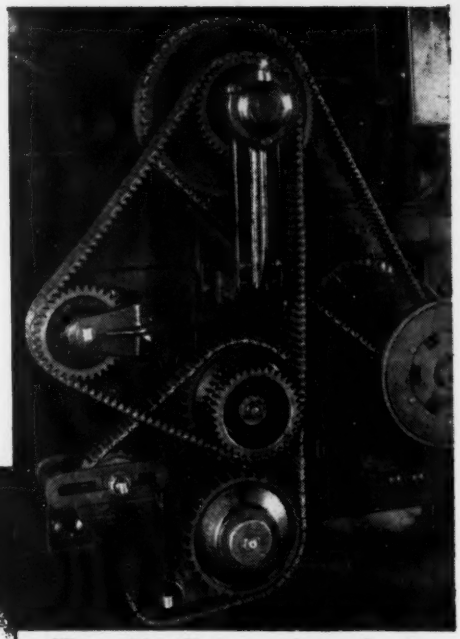
Address.....

City.....*Zone*.....*State*.....

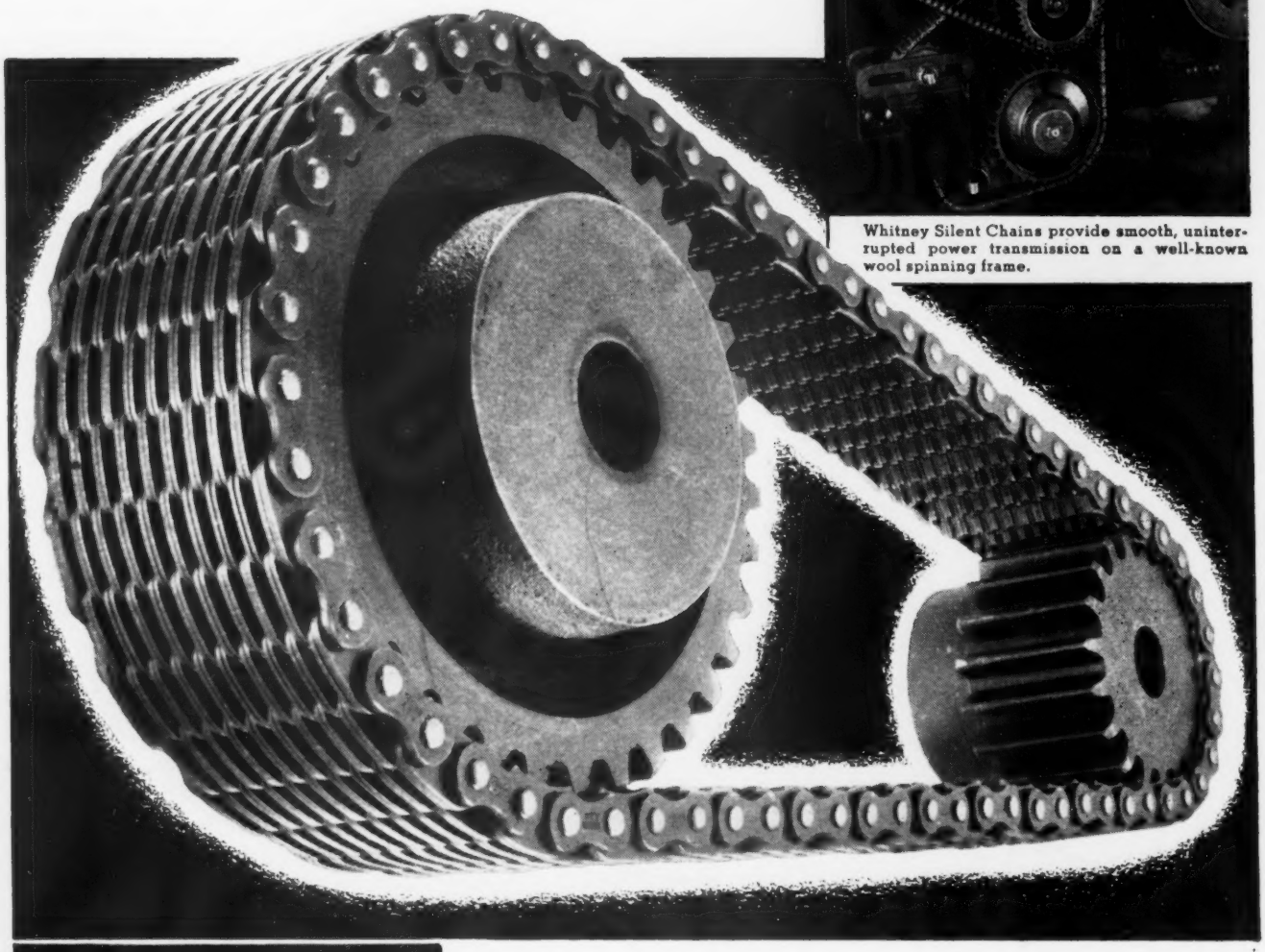
T.W. 3-47

Preferred Choice

OF LEADING TEXTILE MACHINERY MANUFACTURER



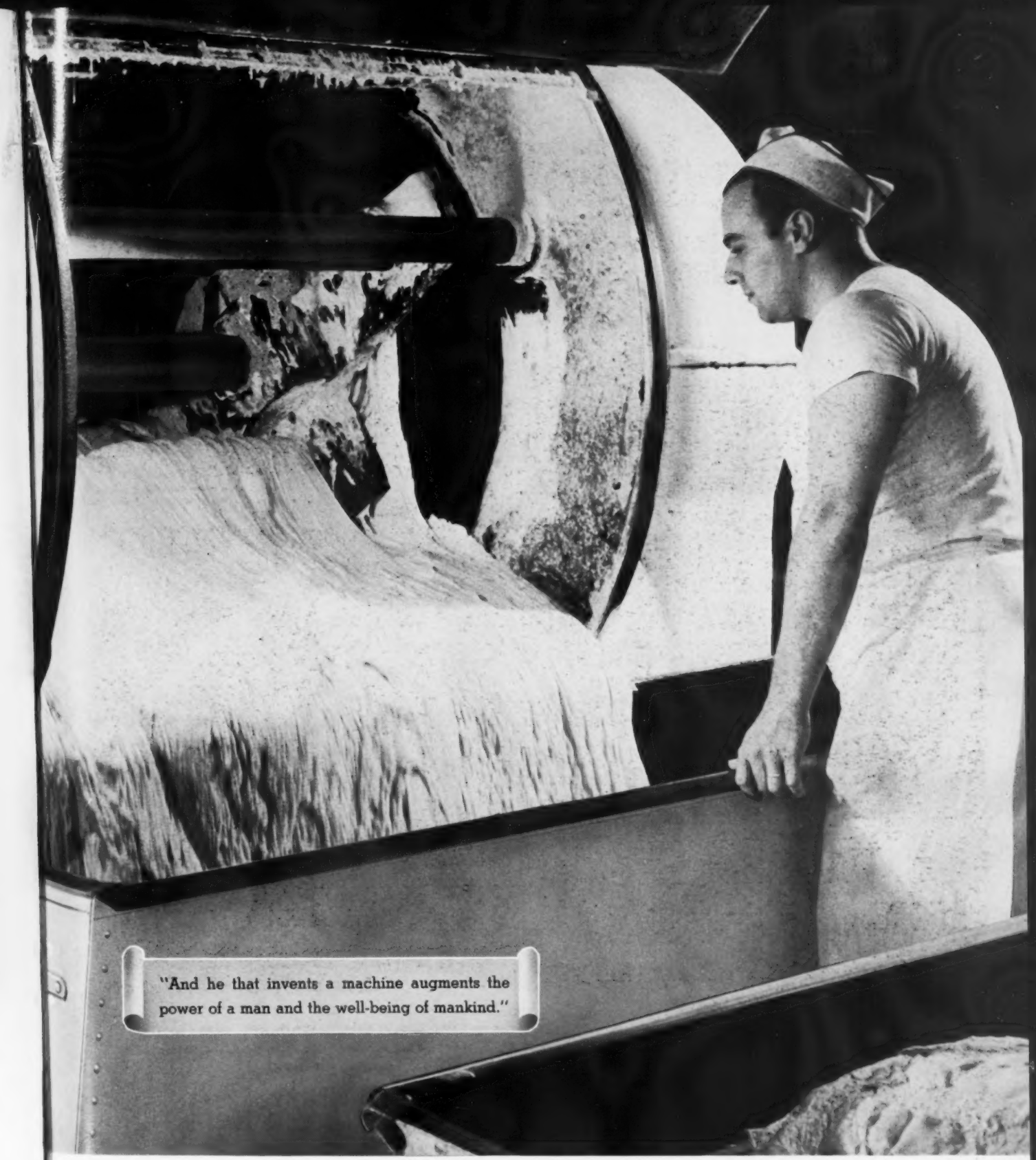
Whitney Silent Chains provide smooth, uninterrupted power transmission on a well-known wool spinning frame.



Whitney Silent Chains...

Throughout the textile industry, you'll find Whitney Silent Chains providing efficient transmission of power in all types of equipment . . . hosiery machines, wool spinning frames, cotton print presses, high speed cotton slashers, worsted cards — to name just a few. The reason — Whitney Silent Chains are the preferred choice by practically all textile machinery manufacturers. Whitney is "standard" because these chains have earned a reputation for delivering efficient power without *slipping* or *friction loss* from power source to driven mechanisms. They help maintain uniformity of products by transmitting constant motor speed. The exclusive Double Bearing principle whereby shocks and overloads are distributed on both the inside and outside of the chain bushing gives 50% greater load bearing area . . . provides long life, cuts maintenance. It will pay you to *standardize* on Whitney Silent Chain Drives. Write for complete information.

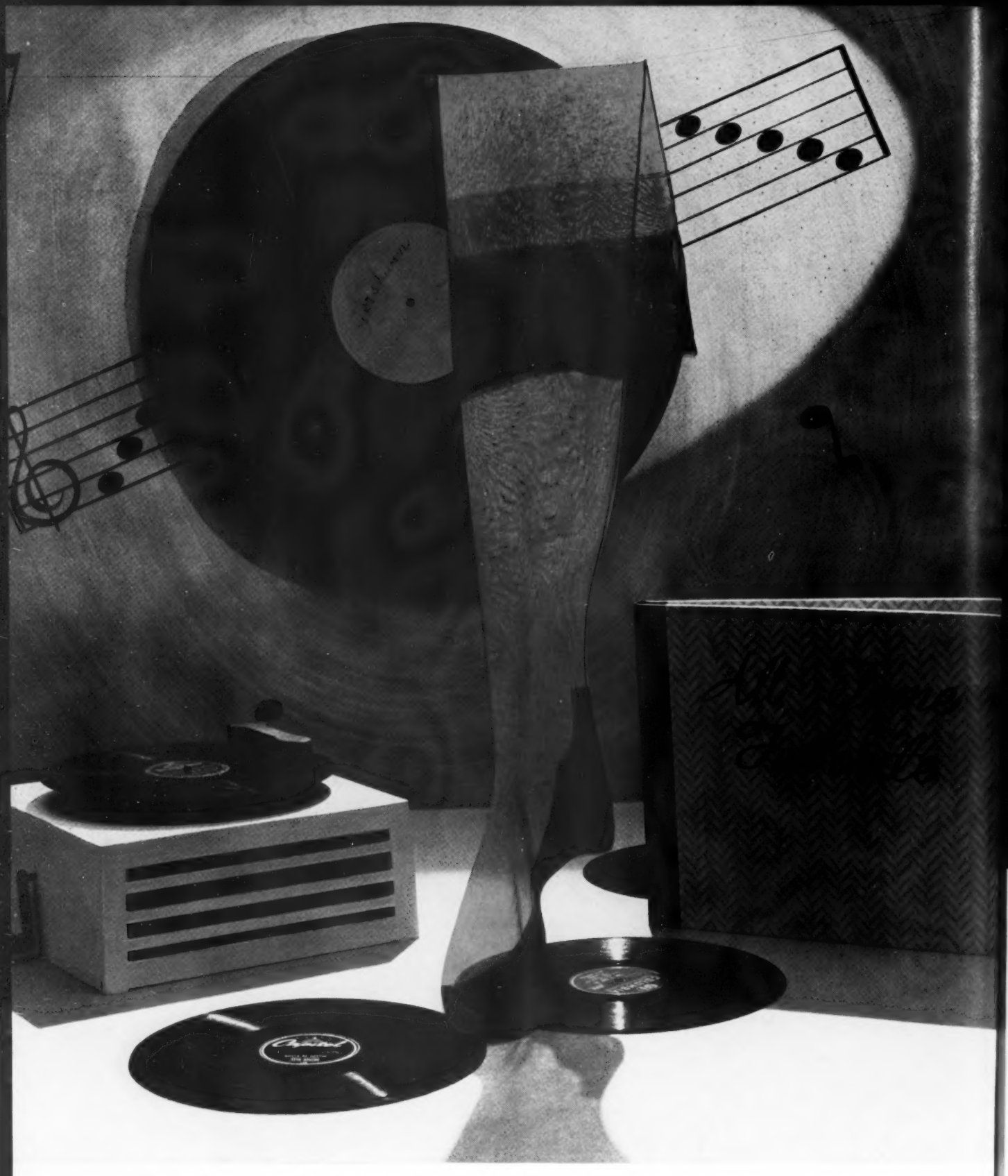
THE WHITNEY CHAIN & MFG. CO., HARTFORD 2, CONN.



Automatic Dough Mixer in a modern bakery

Modern machines have made Americans the world's most efficient workers, and with every increase in efficiency, the worker has increased his share of the good things of life and the time in which to enjoy them. In Full-Fashioned Knitting, the READING Machine is the machine that insures the high standard of living of the thousands of skilled workers in the industry.

TEXTILE MACHINE WORKS · READING, PA.



All-Time Favorite . . . Take this refrain and play it again and again—lovely stockings are one indispensable item in a woman's wardrobe. To give you finer qualities, more even textures, TMW Needles are Fixture Drawn,* an exclusive process that holds the needles straight and true. Let us put your needle bars in shape for faster, more accurate, more profitable knitting.

* Reg. U. S. Pat. Off.

TEXTILE MACHINE WORKS • READING, PA.

The More TECA* the Better the Blend

*EASTMAN CRIMPED ACETATE RAYON

For information about Teca, consult A. M. Tenney Associates, Inc., 10 East 40th St., New York, sales representatives for TENNESSEE EASTMAN CORPORATION *(Subsidiary of the Eastman Kodak Company),* KINGSPORT, TENNESSEE.

IF YOU NEED STEEL...

Is this talk about steel scrap shortage "old stuff"?

Not when you hear a veteran open-hearth superintendent say this:

"We are losing ground every day. There was a bad shortage of steel scrap during the war, but now it's much worse. I'm not exaggerating when I say that steel mill scrap piles are ***now at their lowest ebb in the history of the industry.***"

There can be only one result — less steel for your needs.

(In normal times steel mills carry their highest scrap inventories from January to April.)

★ ★ ★ ★

Some steel mills have been forced to bank furnaces. Others are using abnormally high percentages of pig iron when the furnaces are "charged." This means longer refining time . . . lower production. Normally, about one-half ton of steel scrap is used for every ton of steel ingots produced.

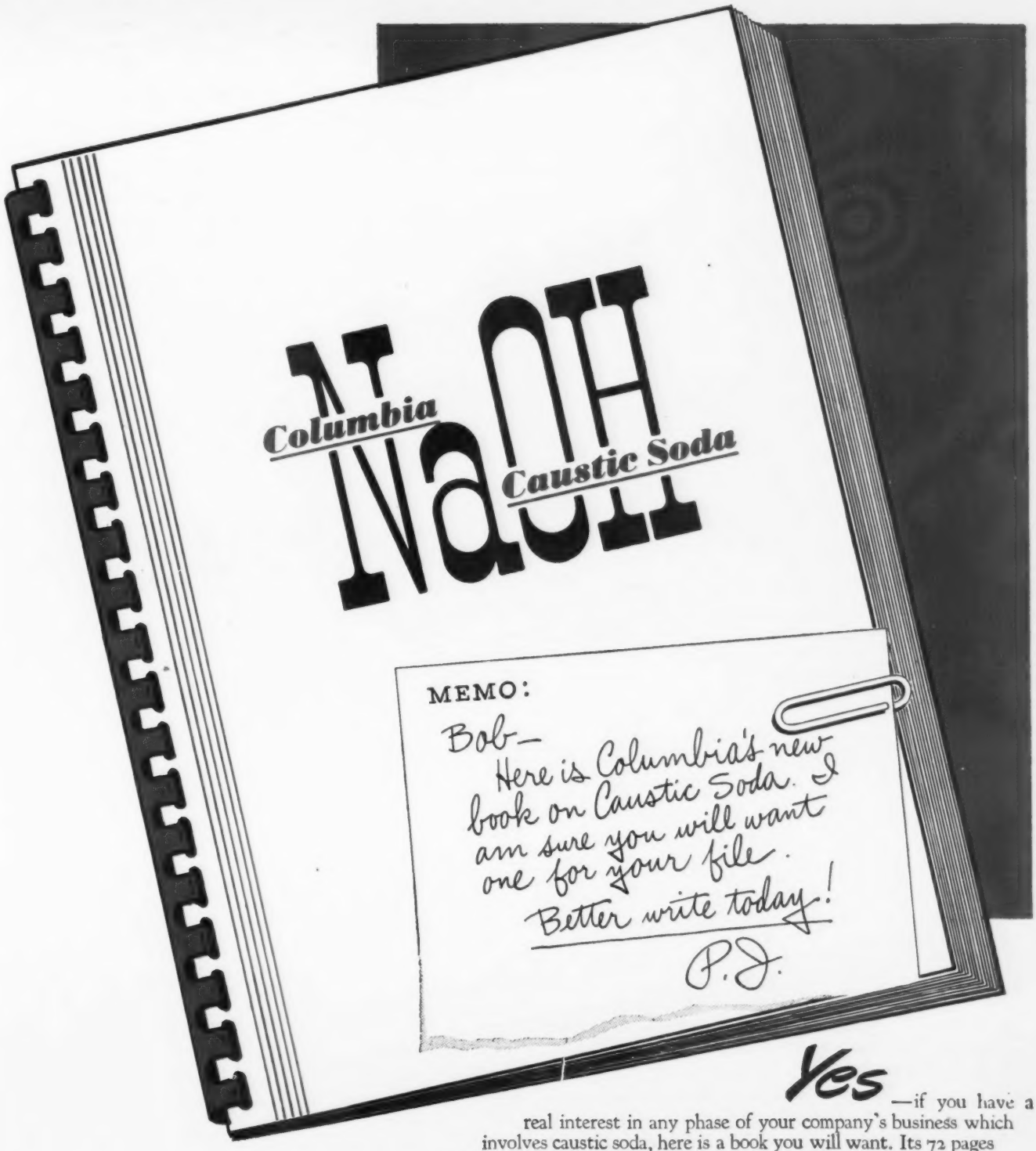
YOU CAN HELP

There is only *one* possible solution — MORE SCRAP!

You can help hurry it to the steel industry through your regular channels. Appoint an energetic man to do the job. Let him clean up every bit of scrap on the premises. Chances are he'll find unused or obsolete machines, equipment and tools. Overlook nothing — if it's made of iron or steel.

Then the scrap should be separated into ferrous and non-ferrous metals. A hurry call to your scrap dealer will do the rest. Help keep steel rolling! The American Rolling Mill Company, 1101 Curtis Street, Middletown, Ohio.

The shipping date may depend on <u>your</u> scrap pile!



Yes—if you have a real interest in any phase of your company's business which involves caustic soda, here is a book you will want. Its 72 pages —8½" x 11"—are full of information on the best procedures for unloading, handling and storing caustic soda. This is a comprehensive book for technical and operating men, engineers, purchasing agents and managing executives. We shall be glad to send you a copy if you will write us on your company letterhead.

COLUMBIA CHEMICALS

PITTSBURGH PLATE GLASS COMPANY

COLUMBIA CHEMICAL DIVISION

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COLUMBIA ESSENTIAL INDUSTRIAL CHEMICALS
Soda Ash · Caustic Soda · Liquid Chlorine · Sodium Bicarbonate · Pittchlor ***(Calcium Hypochlorite)*** **· Silene EF** ***(Hydrated Calcium Silicate)*** **· Calcium Chloride · Soda Briquettes** ***(Iron Desulphurizer)*** **· Modified Sodas · Caustic Ash · Phosflake** ***(Bottle Washer)*** **· Calcene T** ***(Precipitated Calcium Carbonate)***

You Can SEE That

It's ONLY the SIDE of a V-Belt

That Grips the Pulley and *Gets the Wear!*

DIAGRAM OF BELT IN PULLEY GROOVE

Look at a V-Belt in its sheave and you see at once that the *sides* of the belt do all the gripping on the pulley and get all the wear against the sheave-groove wall.

Notice, too—it's the *sides* that pick up all the power delivered by the driver pulley. The sides *transmit* that power to the *belt as a whole*. And then, once more, it's the sides—and the sides *alone*—that grip the driven pulley and *deliver* the power to it.

That is why you have always noticed that the sidewall of the ordinary V-Belt is the part that wears out first.

—and Here Is How the CONCAVE SIDE ★REDUCES Sidewall WEAR *and Lengthens Belt Life!*

Clearly, since the sidewall is the part that wears out first, anything that prolongs the life of the sidewall will lengthen the life of the belt.

The simple diagrams on the right show exactly why the ordinary, straight-sided V-Belt gets excessive wear along the *middle* of the sides. They show also why the Patented Concave Side greatly reduces sidewall wear in Gates Vulco Ropes. That is the simple reason why your Gates Vulco Ropes are giving you so much longer service than any straight-sided V-Belts can possibly give.

Straight Sided V-Belt

How Straight Sided V-Belt Bulges When Bending Around Its Pulley

You can actually feel the bulging of a straight-sided V-Belt by holding the sides between your finger and thumb and then bending the belt. Naturally, this bulging produces excessive wear along the middle of the sidewall as indicated by arrows.

Gates V-Belt with Patented Concave Sidewall

Showing How Concave Side of Gates V-Belt Straightens to Make Perfect Fit in Sheave Groove When Belt Is Bending Over Pulley

No Bulging against the sides of the sheave groove means that sidewall wear is evenly distributed over the full width of the sidewall—and that means much longer life for the belt!

★More Important NOW That STRONGER Tension Members are Used

Now that Gates *Specialized* Research has resulted in V-Belts having much stronger tension members—tension members of Rayon Cords and Flexible Steel Cables, among others—the sidewall of the belt is often called upon to transmit to the pulley much heavier loads. Naturally, with heavier loading on the sidewall the life-prolonging Concave Side is more important today than ever before!

THE GATES RUBBER COMPANY Denver, U. S. A.

"World's Largest Maker of V-Belts"

473

GATES VULCO ROPE DRIVES

Engineering Offices and Jobber Stocks **IN ALL INDUSTRIAL CENTERS** of the U. S. and 71 Foreign Countries

Gates

THE MARK OF SPECIALIZED RESEARCH

Sleeve bearings are not damaged by microscopic particles in the air or the lubricant. Bunting Bearings should be handled with care and cleanliness, but do not require the observance of surgical standards for their successful use. Bunting Engineers are prepared to assist in designing new installations. The Bunting Brass & Bronze Company, Toledo 9, Ohio. Branches in Principal Cities.

Bunting

BRONZE BEARINGS ☆ BUSHINGS ☆ PRECISION BRONZE BARS

60

More than a Century OF MAKING VALVES ...and valves only

More than 100 years ago the Wm. Powell Company dedicated itself to the making of valves—*and valves only*. Thus Powell pioneered in the field of specialization long before the "age of specialization" arrived.

The soundness of this policy, backed by continual scientific advancement and the ability to meet every new demand as it has arisen, is attested by the high quality of Powell Valves today.

The Powell Line is so complete that there's a Powell Valve—*in Bronze, Iron, Steel, Pure Metals* or *Special Alloys*—to satisfy every known flow control requirement in every branch of modern industry.

Fig. 1816—All Iron Gate Valve for 125 pounds W. S. P. Made in sizes 2" to 30", inclusive. Has flanged ends, bolted flanged yoke, outside screw rising stem and taper wedge solid disc.

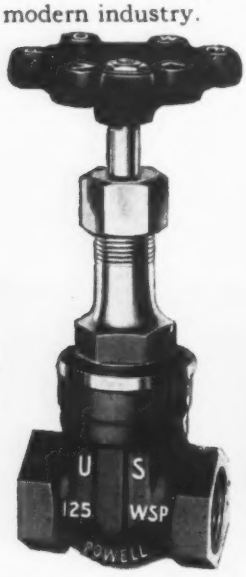

Fig. 500 — 125-pound Bronze Gate Valve with screwed ends, inside screw rising stem, screwed-in bonnet and either taper wedge solid or double disc.

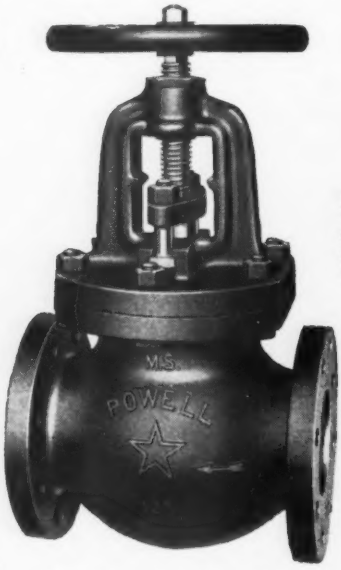

Fig. 457—All Iron Globe Valve. Has flanged ends, bolted flanged yoke, outside screw rising stem and regrindable, renewable iron seat and disc. Made in sizes 2" to 12", inclusive.

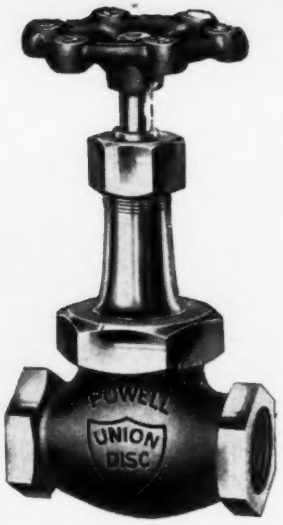

Fig. 150—150-pound Bronze Globe Valve with screwed ends, union bonnet and renewable composition disc.

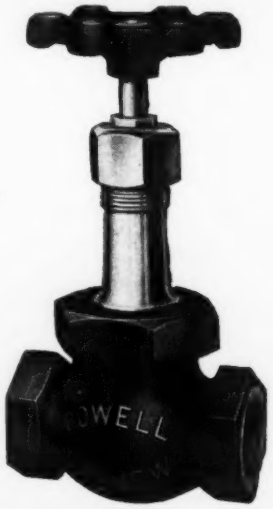

Fig. 190—150-pound Iron Body Bronze Mounted "Irenew" Globe Valve. Has screwed ends, union bonnet and regrindable, renewable wear-resisting "Powellium" nickel-bronze seat and disc.

Fig. 1259—All Iron Swing Check Valve for 125 pounds W. S. P. Made in sizes 2" to 12", incl. Has flanged ends, bolted flanged cap and regrindable, renewable iron disc. Disc, when wide open permits full, unobstructed flow through the valve body.

The Wm. Powell Co., Cincinnati 22, Ohio

DISTRIBUTORS AND STOCKS IN ALL PRINCIPAL CITIES

POWELL VALVES

Pontachrome* Yellow DF

As a shading element in browns and olives, "PONTACHROME" Yellow DF is especially suited for use on worsteds and woolens, bathing suit yarns, carpet stock, and upholstery fabrics... is also recommended for self-shades.

The rich gold shades of "PONTACHROME" Yellow DF possess good fastness to light, fulling, carbonizing with both aluminum chloride and sulfuric acid, perspiration, salt water, and dry cleaning. Readily soluble in the usual concentrations... penetrates well... can be used on rawstock, tops, yarns, and piece goods. It is also suitable for dyeing nylon by the top-chrome process. E. I. du Pont de Nemours & Co. (Inc.), Dyestuffs Division, Wilmington 98, Delaware.

du Pont Dyestuffs

DU PONT

*REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING...*THROUGH CHEMISTRY*

Worsted Yarn Coned at High Speed

on the ROTO-CONER*

The highly successful results that Woonsocket Worsted Co. has experienced with the Roto-Coner* suggests that the use of the metal Rotary Traverse greatly broadens the application of this high-speed drum winding machine.

In addition to the 400 mills winding *cotton* yarn on the Roto-Coner*, there are many others using it —equipped with wear-resisting metal roll—for wool, worsted and synthetic staple yarn. The roll—a one-piece driving drum and traverse guide—is responsible for the higher winding speed (550 YPM for paper coning), superior quality of winding (freedom from roll cuts and underwinds), and low maintenance cost (no cams or other fast-wearing parts to grease and replace).

Bulletin 144 describes the Roto-Coner's* many other advantages. Write for a copy.

UNIVERSAL WINDING COMPANY

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23-6-15

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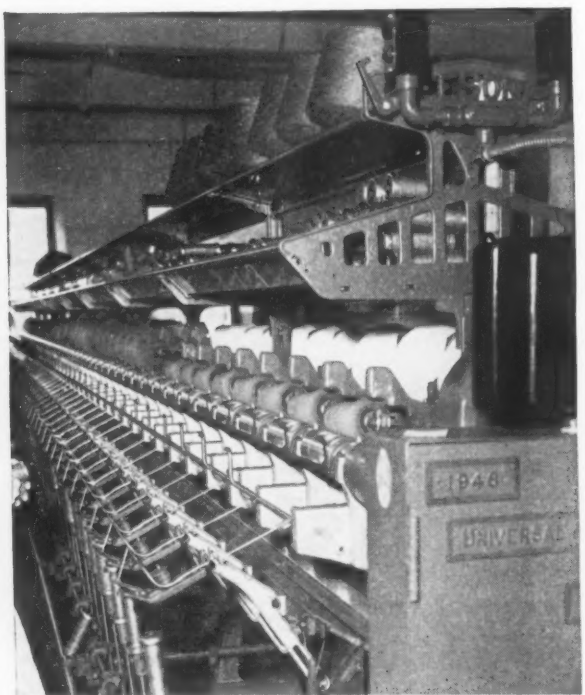
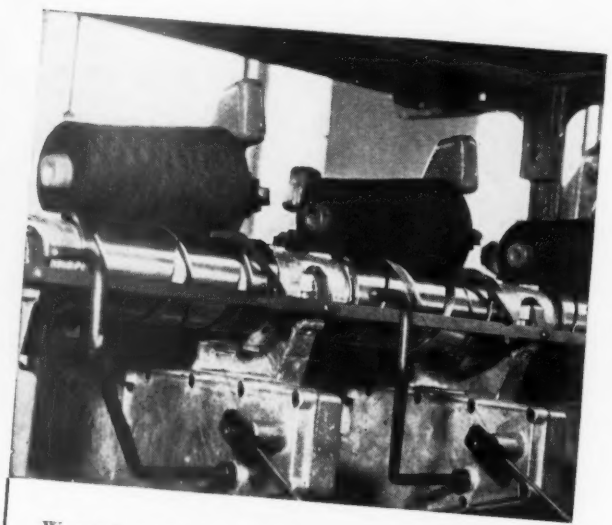
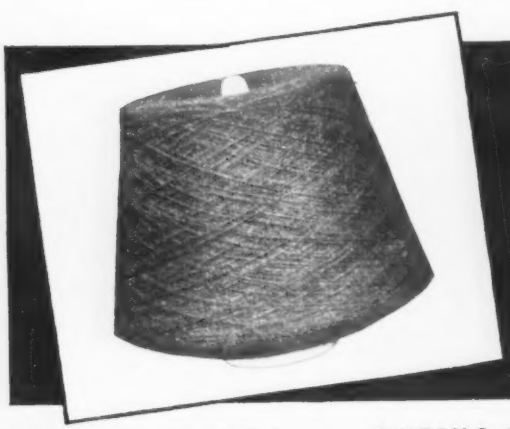


Woonsocket Worsted Co. reports that its Roto-Coners* "have been entirely successful, and we are highly pleased with them."



Worsted yarn being coned on Roto-Coner*. The Rotary Traverses are made of wear-resisting metal, grooved to give proper package formation.



ROTO-CONER* LEESONA REG. U.S. PAT. OFF.

Open-Wind Cones for Knitting

WARPING CONES • DYEING PACKAGES • PARALLEL TUBES FOR TWISTING

TAX REVISION...

Can Make or Break American Business

IS THE American way of life—progress by private initiative—going to get a fair chance to demonstrate its superiority over all the challenging varieties of collectivism?

That's the real question before Congress as it confronts the long labor of remodeling the federal tax structure. What Congress does about taxes will come pretty close to making or breaking the U. S. A.

Today the tax colossus that sprawls across the national economy is unguided by any central nervous system. Its crushing weight comes down first here, then there, as the giant wobbles around, unguided by any central purpose except to grab as much as it can.

The central purpose of a tax system is simple. It should raise the necessary revenue without placing unnecessary fetters on enterprise.

As recently as 1929 federal taxes took only one dollar out of every twenty of national income. A loose-jointed and inconsistent tax structure was a nuisance then. But it wasn't serious.

Today the federal tax burden is the dominant element in the nation's economy.

Even if Congress succeeds in cutting $6 billions out of President Truman's $37.5 billion budget, federal taxes still will take about one dollar out of every five of the national income. And few Congressmen are hopeful enough to think that they can get the tax load below $25 billion for any year that is in sight.

Drastic Budget Cuts Required

Indeed, to get the tax load down to $25 billion, Congress will have to stop treating expenditures, like those for military purposes and veterans, as politically sacrosanct. Congress must scrutinize *every* item in the budget. Economy must go along with tax cutting or we shall end in bankruptcy.

Suppose that expenditures are slashed to the bone. Our taxes *still* will be so heavy that the *way* they are loaded on the nation's back will make a big difference in how well the nation gets along. That's something which the postwar boom has tended to obscure. It will become much clearer as this boom wears off. Then a remodeling of the federal tax system to remove its manifold obstructions to private enterprise will be of transcendent and obvious importance to everybody.

Tax Experts Agree

The remodeling will require political courage plus tax wisdom. Congress must supply its own political courage. But it can lean on tax experts for tax wisdom. Fortunately, tax experts now agree on the necessary reforms—especially on those that will remove obstructions to business. How well the tax experts agree is shown in the charts on the next page, summarizing answers to a questionnaire on possible federal tax reforms. The questions were asked by the Department of Economics of the McGraw-Hill Publishing Company. The answers came from a broad cross-section of tax experts, including the authors of a considerable crop of books on postwar federal taxes and what to do about them.

The experts agree (see the charts) that double taxation of corporate dividends should stop.

They agree that the tax rate on corporate income (now 38 percent) should be reduced as rapidly as possible to the initial rate on individual income (now 20 percent).

And they agree overwhelmingly that it is desirable to let net losses be subtracted from net profits over a 5-to-6-year period in computing business income for tax purposes.

All three changes would stimulate corporate initiative and hence make jobs. Averaging business incomes would make new ventures attractive even though these ventures *might* result in early losses. Reduction of the corporate income tax would have the same effect. So, too, would the elimination of that highly discriminatory provision whereby corporate dividends are taxed first as corporate profits, and again when received as income by individuals.

Penalties on Incentives

Beyond these changes, there must be an end to tax penalties on *individual* initiative. Consider the enterprising business man whose income fluctuates markedly from year to year. Because of his enterprise he may pay, on the same income, twice as much federal income tax as the man who plays it safe for a steady income. That's because he can't average his personal income over several years for tax purposes. He can count on heavy taxation of his good-year profits with no chance for offsetting against them his bad-year losses. It is a case of heads you lose, tails the tax collector wins. Eighty-six percent of the experts agree that an income-averaging allowance for individuals is desirable.

Three-quarters of them also agree that tax rates at the top end of the individual income scale (now running up almost to 90 percent) should come down. In my judgment, the total tax should not amount to more than 50 percent to encourage business men to venture for high stakes.

Advocating tax relief for men in the higher income brackets—and particularly for management men—has been considered political suicide for more than a decade. Some members of Congress still hold that view. A Democratic Congressman from Michigan told an Illinois colleague who advocated cutting upper bracket taxes, "If you put that idea forward at home, you won't come back."

The Congressman has an even better chance of not going back if our economy bogs down. One of the best ways to bog it down is to keep the taxes that destroy business incentives and block enterprise—for example, the confiscatory rates which drive the people in the high brackets away from risk-taking.

To give the American system of individual enterprise a fair chance was clearly the mandate of November's election. To give it that chance, enterprising business men must have a chance to make large rewards—as well as the always-present chance to lose their shirts. Under present tax rates, they don't get a break.

Prevailing federal taxation throttles bold business enterprise in other ways. It fails, for example, to encourage research and rapid industrial modernization. It tends to siphon investment away from private enterprise, driving it into tax exempt state and local securities. (The experts agree almost to a man that such tax exemption must be eliminated.) The list of obstacles could be amplified.

Hit-and-Run Revision Disastrous

Most of the reforms needed to prevent the federal tax system from smothering enterprise would lower federal revenues, at least temporarily. Elimination of the double taxation of corporate dividends might lop off $800 million. Dropping the corporate income tax from 38 percent to 20 percent might cut away as much as $4 billion.

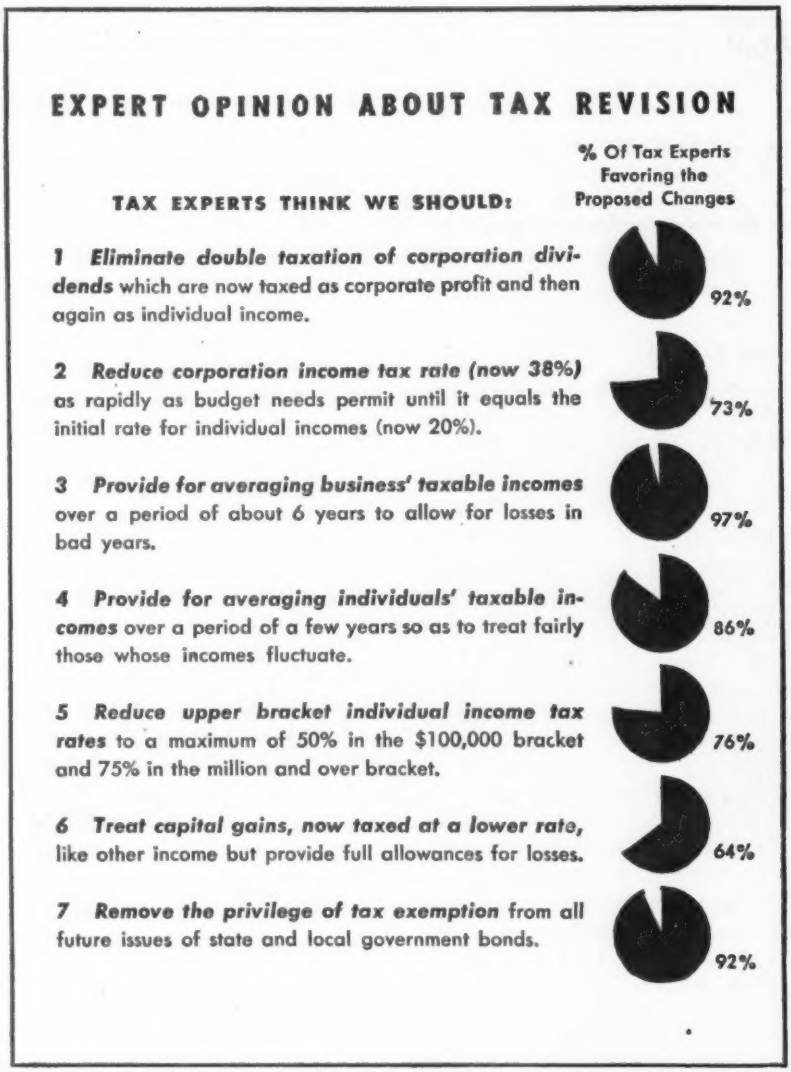
Because we can not avoid enormous federal expenses in the years immediately ahead, all badly needed reforms of the type to which this article is confined obviously can't be made at once. Also there are other tax reforms bearing on consumption which obviously should be weighted in an over-all program of tax revision.

But this is equally obvious: We should have a general design for tax revision which would line up all the necessary steps. Then we could get ahead with tax reductions as rapidly—and as sensibly—as revenue requirements and political courage would permit. Tax cutting may come piece-meal, but tax planning must not.

Through such a design we might discover that some decidedly beneficial improvements in the federal tax structure can be made at relatively slight cost. But today there's no way to be sure. No one in Washington with access to the information has even undertaken to make the necessary estimate.

Instead, federal tax revision continues to be a hit-and-run business—and a short-run political business. Take, for example, the proposal of a 20 percent tax reduction across the boards. There are virtues in such a proposal. But how they stack up beside many other extremely urgent needs for tax reform remains a mystery.

Congress must dispel such mysteries. Only in that way will it do the job of converting our present jerry-built tax structure into a moderately safe abode for the American system of private initiative, sparked by adequate incentives.


EXPERT OPINION ABOUT TAX REVISION
% Of Tax Experts Favoring the Proposed Changes
TAX EXPERTS THINK WE SHOULD:
1 Eliminate double taxation of corporation dividends which are now taxed as corporate profit and then again as individual income.
92%
2 Reduce corporation income tax rate (now 38%) as rapidly as budget needs permit until it equals the initial rate for individual incomes (now 20%).
73%
3 Provide for averaging business' taxable incomes over a period of about 6 years to allow for losses in bad years.
97%
4 Provide for averaging individuals' taxable incomes over a period of a few years so as to treat fairly those whose incomes fluctuate.
86%
5 Reduce upper bracket individual income tax rates to a maximum of 50% in the $100,000 bracket and 75% in the million and over bracket.
76%
6 Treat capital gains, now taxed at a lower rate, like other income but provide full allowances for losses.
64%
7 Remove the privilege of tax exemption from all future issues of state and local government bonds.
92%

James H. McGraw, Jr.

President McGraw-Hill Publishing Company, Inc.

THIS IS THE 56TH OF A SERIES

TEXTILE WORLD
MARCH, 1947 · VOL. 97, NO. 3

ACRYLONITRILES

★ ★ ★

(Pronounced ACK-ri-lo-neye-TRILLS)

A New Class of Synthetic Fibers

HIGHLIGHTS: *Group includes Fiber A and Vinyon N — Strength appears to be greater than that of rayons but less than nylons—Other properties may be of more importance — Previously restricted information now available from patents — Limited production is for experimental and development purposes.*

By JOSEPH V. SHERMAN

A NEW and potentially important class of synthetic fibers is based on the chemical acryonitrile, a vinyl compound which came into prominence during the war, when it was combined with butadiene to make Buna N rubber.

Polymerized acrylonitrile has a number of important advantages which indicate that it will be used increasingly as a fiber-forming material. It has a crystalline structure and can be oriented, as shown by X-ray diffraction patterns. The oriented fibers have good strength characteristics. Moreover, the polymer is infusible and has excellent resistance to the effects of heat, light, and chemicals in general. Finally, it is believed that the material can be made inexpensively; and this opens up the likelihood that synthetic fibers with markedly superior properties will be available at competitive prices. For example, the fibers have better resistance to the effects of heat, light, and chemicals than nylon and may undersell the latter in the hosiery market. However, acrylonitrile fibers generally have poor dyeing properties, but this deficiency may in time be overcome.

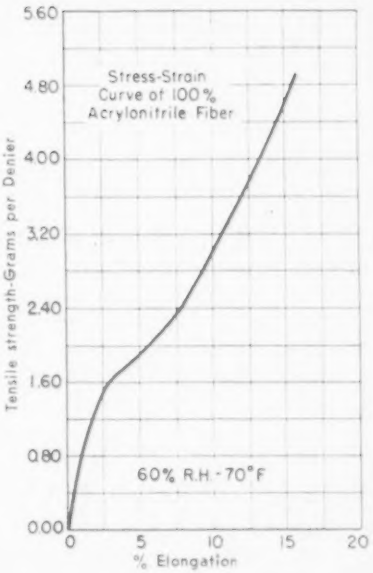
There are several types of acrylonitrile fibers, including Du Pont's Fiber A, Carbide & Carbon Chemicals Corp.'s Vinyon N, and another type which is under development by General Electric Co. A number of patents recently issued to E. I. du Pont de Nemours & Co., Carbide & Carbon Chemicals Corp., American Viscose Corp., and General Electric Co. shed considerable light on these new fibers. Some of the patents were placed under secrecy restrictions during the war.

The original work on acrylonitrile fibers was carried out by I. G. Farben in Germany[1, 2]. However, the German processes for making the fibers were found to be impracticable.

BASIC PATENT. A basic patent[10], issued to the Du Pont company July 23, 1946, describes the first successful process for dissolving acrylonitrile polymers in a solvent for the production of commercially useful textile yarns and other products. This has been achieved by the development of a group of organic compounds which dissolve acrylonitrile polymers (or copolymers containing at least 85% by weight of acrylonitrile), without reacting with or decomposing the polymers. These compounds are later removed from the filaments or other products formed from the solution, leaving intact the acrylonitrile polymers. (See references 9 to 24 on next page.)

The yarns can be stretched to yield oriented structures that possess high tenacity, desirable elongation, and high elastic recovery that compares favorably with that of silk. A method of stretching the yarn to increase its tenacity has been described by Du Pont[4]. A 440-den. 40-filament, no twist yarn, prepared by dry spinning a solution of acrylonitrile polymer of 103,000 average molecular weight dissolved in dimethyl formamide was passed through a spring-leaf filament-spreading device and around a hot roll, heated at 165° to 180° C. The yarn was fed onto the roll at the rate of 145 in. per min., and drawn from the roll at the rate of 1,450 in. per min., thereby stretching the yarn 10 times. The unstretched yarn of 440 den. had a tenacity of 0.6 gram per denier, while the stretched yarn of 42 to 45 den. had a tenacity of 4.3 grams per denier.

Acrylonitrile fibers are resistant to action of water and common organic solvents. They are substantially impervious to oils and hydrocarbons in-



Production of Vinyon N

Semicommercial production of Vinyon N was announced Feb. 27 by Carbide and Carbon Chemical Corp. Features of the yarn being produced are said to be dimensional stability, strength of 3½ to 4 grams per denier, and extensibility of 12 to 30%. It will be spun in sizes of 35 denier and heavier. Natural color is light gold.

THESE PATENTS, many of which are referred to in the text, are the principal source of public information concerning acrylonitrile fibers.

[1] U. S. 2,117,210 (May 10, 1938). "Manufacture of Shaped Articles of Polymeric Acrylic Acid Nitrile." H. Rein; I. G. Farben. Appl. Aug. 19, 1935; Ser. No. 36,937.

[2] U. S. 2,140,921 (Dec. 20, 1938). "Manufacture of Solutions of a Polymerized Vinyl Compound." H. Rein; I. G. Farben. Appl. Dec. 6, 1935; Ser. No. 53,161.

[3] U. S. 2,366,495 (Jan. 2, 1945). "Synthetic Products Having Molecularly Oriented Structure." G. F. D'Alelio; General Electric Co. Appl. July 3, 1942; Ser. No. 449,678.

[4] U. S. 2,394,540 (Feb. 12, 1946). "Stretching of Artificial Yarn." T. G. Finzel; Du Pont. Appl. Aug. 20, 1943; Ser. No. 499,327. Comparable to B. P. 581,526. "Process and Apparatus for Heat-Treating and Stretching Untwisted Yarn Consisting Essentially of a Polymer of Acrylonitrile." Du Pont. Appl. Aug. 21, 1944; No. 15,917.

[5] U. S. 2,399,258 (April 30, 1946). "Novel Filamentous Product and Method of Making It." R. J. Taylor; American Viscose Corp. Appl. Mar. 20, 1943; Ser. No. 479,889.

[6] U. S. 2,399,259 (April 30, 1946). "Method of Making Hollow Filaments and Product Thereof." R. J. Taylor; American Viscose Corp. Appl. May 29, 1943; Ser. No. 489,071.

[7] U. S. 2,399,260 (April 30, 1946). "Filamentous Product." R. J. Taylor; American Viscose Corp. Appl. June 8, 1943; Ser. No. 490,009.

[8] U. S. 2,403,960 (July 16, 1946). "Antistatic Treatment of Vinyl Resin Articles." W. N. Stoops and A. L. Wilson; Carbide & Carbon Chemicals Corp. Appl. Apr. 10, 1943; Ser. No. 482,622.

[9] U. S. 2,404,713 (July 23, 1946). "Method for Preparing Polymeric Solutions." R. C. Houtz; Du Pont. Appl. June 23, 1943; Ser. No. 491,945.

[10] U. S. 2,404,714 (July 23, 1946). "Polymer Products." G. H. Latham; Du Pont. Appl. Nov. 4, 1944; Ser. No. 562,012.

[11] U. S. 2,404,715 (July 23, 1946). "Polymer Solutions." A. O. Rogers; Du Pont. Appl. No. 4, 1944; Ser. No. 562,013.

[12] U. S. 2,404,716 (July 23, 1946). "Polymer Products." V. L. Hansley; Du Pont. Appl. Nov. 4, 1944; Ser. No. 562,014.

[13] U. S. 2,404,717 (July 23, 1946). "Preparation of Solutions." R. C. Houtz; Du Pont. Appl. Nov. 4, 1944; Ser. No. 562,015.

[14] U. S. 2,404,718 (July 23, 1946). "Dissolving of Polymers." R. C. Houtz; Du Pont. Appl. Nov. 4, 1944; Ser. No. 562,016.

[15] U. S. 2,404,719 (July 23, 1946). "Acrylonitrile Polymer Solutions." R. C. Houtz; Du Pont. Appl. Nov. 4, 1944; Ser. No. 562,017.

[16] U. S. 2,404,720 (July 23, 1946). "Polymer Products." R. C. Houtz; Du Pont. Appl. Nov. 4, 1944; Ser. No. 562,018.

[17] U. S. 2,404,721 (July 23, 1946). "Polymer Products and Process for Producing the Same." R. C. Houtz; Du Pont. Appl. Nov. 4, 1944; Ser. No. 562,019.

[18] U. S. 2,404,722 (July 23, 1946). "Acrylonitrile Polymer Solutions." R. E. Houtz; Du Pont. Appl. Nov. 4, 1944; Ser. No. 562,020.

[19] U. S. 2,404,723 (July 23, 1946). "Preparation of Polymer Solutions." R. R. Merner; Du Pont. Appl. Nov. 10, 1944; Ser. No. 562,857.

[20] U. S. 2,404,724 (July 23, 1946). "Preparing Solutions of Polymers." R. C. Houtz; Du Pont. Apply Nov. 18, 1944; Ser. No. 564,181.

[21] U. S. 2,404,725 (July 23, 1946). "Polymer Solutions." A. O. Rogers; Du Pont. Appl. Nov. 18, 1944; Ser. No. 564,182.

[22] U. S. 2,404,726 (July 23, 1946). "Polymer Compositions and Their Preparation." W. H. Charch; Du Pont. Appl. Nov. 18, 1944; Ser. No. 564,183.

[23] U. S. 2,404,727 (July 23, 1946). "Dissolving of Polymers." R. C. Houtz; Du Pont. Appl. Dec. 4, 1944; Ser. No. 568,194.

[24] U. S. 2,404,728 (July 23, 1946). "Method of Preparing Polymeric Solutions." T. G. Finzel; Du Pont. Appl. May 11, 1945; Ser. No. 593,319.

[25] U. S. 2,412,034 (Dec. 3, 1946). "Synthetic Compositions and Products Having Molecularly Oriented Structure." G. F. D'Alelio; General Electric Co. Appl. June 4, 1942; Ser. No. 445,808.

cluding aviation gasolines. They are not affected by prolonged contact with relatively concentrated solutions of sulphuric acid, or other mineral acids. They differ from fibers of other vinyl compounds, such as polyvinyl chloride, in that they do not shrink greatly when heated to high temperatures. They have high dielectric strength and are not harmed by prolonged exposure to ultra-violet light. They are also very resistant to the action of mold and bacteria growths.

USES FORESEEN. Because of these unique properties, acrylonitrile fibers should find many important uses. The high tenacity, flexibility, and resiliency of the yarns make them suitable for use in the manufacture of hosiery and other articles of wearing apparel. Resistance to soiling and ease of cleaning (common cleaning agents may be used on them without damage) make them desirable for use in flat fabrics and either as multi-filament or monofilament yarns in the manufacture of pile fabrics, including velvets, plushes, upholstery, or carpeting. The yarns can be advantageously used as either the pile or backing for such fabrics.

Their low water absorption, high resistance to mold and bacteria growths, and pronounced resistance to ultra-violet light make the yarns suitable for use in outdoor fabrics such as tents, awnings, tarpaulins, flags, sails, and the like. These properties, together with the low specific gravity of the yarn (1.16), suggests applications in the manufacture of clothing for tropical climates, where light-weight flexible fabrics that resist the action of weather, direct sunlight, and mold growth are required. Other suggested applications for the yarns include fishing lines, fish nets, cordage (especially for marine purposes), bathing suits, and umbrellas.

Acrylonitrile fibers can be made either in continuous-filament form or in cut staple of any desired length. They can be formed into novelty yarns with other fibers, either natural or synthetic. Acrylonitrile staple, because of its high resiliency, particularly when crimped, is suitable for admixture with wool.

Monofilaments are suggested for use in the manufacture of rattan-like fabrics for furniture; also for bristles, and window screening, where their light weight, low water absorption, and high resistance to ultra-violet light, sulphur fumes, and salt air are important. Because of their high flexibility and durability, screens made of them can be rolled up when not in use, thus permitting their incorporation as an integral part of the window structure.

The excellent resistance of acrylonitrile fibers to the action of acids and most other chemicals, including oils and greases, together with their high softening points and controlled shrinkage, should make the yarns extremely useful in such industrial applications as filter cloths, covers for rayon-spinning bobbins and cakes, and also clothing for workers in areas where acids and corrosive fumes are prevalent.

The foregoing information, taken from Du Pont patents, applies to fibers consisting essentially of polymers of acrylonitrile. However, both the chemical and physical properties of the filaments may be modified considerably by the incorporation in the spinning solution of other fiber-forming materials; for example, nylon, cellulose ethers and esters, or polymers of vinyl compounds, such as vinyl chloride, vinyl acetate, or acrylic acid.

VINYON N. Acrylonitrile may also be copolymerized with other compounds to form fibers. Carbide & Carbon Chemicals Corp. and General Electric Co. have each developed fibers from different copolymers.

Carbide & Carbon Chemicals Corp.'s Vinyon N is based on a copolymer of vinyl chloride and acrylonitrile. This new type of Vinyon retains all the desirable properties of the regular Vinyon, which is based on a copolymer of vinyl chloride and vinyl acetate. In addition, Vinyon N has considerably greater resistance to heat and organic solvents as well as better dyeing properties than the regular Vinyon.

Vinyon N has excellent resistance to corrosive chemicals, and also to fungi.

(*Continued on page 215*)

Fig. 1. After passing around head pulleys of lowerer, cloth trays descend several feet to second-floor loading level, opening the safety gate (as shown) as they come down.

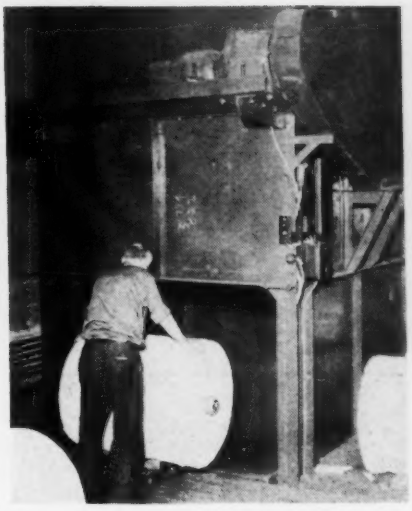


Fig. 2. Operative at Eddystone Manufacturing Co. pushes roll of cloth into tray which has automatically stopped flush with second floor.

Fig. 3. When operator pushes starting button, the Link-Belt cloth lowerer commences to carry the roll down from the second floor, at the same time releasing the safety gate.

Automatic CLOTH LOWERER Handles 120 Rolls per Day

HIGHLIGHTS: *Machine at Eddystone Manufacturing Co. handles rolls from 12 to 44 in. in diameter—In five minutes, it lowers enough rolls to keep printing machines operating for three hours—Two men operating automatic lowerer now bring down more cloth than previously hauled by eight men with hand trucks.*

IN ORDER TO step up production and general plant efficiency, Eddystone Manufacturing Co., Eddystone, Pa., a subsidiary of Joseph Bancroft & Sons Co., has installed automatic mechanical handling equipment to lower rolls of cloth from the second-floor storage room to the first floor where they enter the processing line.

The cloth rolls measure from 12 to 44 in. in diameter by 30 to 54 in. long and weigh up to 1,000 lb. each. They may contain 800, 1,500 or 2,000 yd. of material.

In cooperation with Link-Belt Co. engineers, the company selected and installed a fixed, centrally hung, tray-type lowering machine, as shown in the accompanying photographs. The machine "will bring down more rolls, with two men, than was possible with eight men before," stated a company spokesman, who went on to say, "It will bring down in five minutes enough rolls to keep the cloth-processing machines busy three hours." From 90 to 120 rolls are usually lowered per day.

The roll-lowering medium consists of two endless, power-operated strands of roller chain between which three wrought-steel trays are rigidly attached at equal intervals. The two strands of roller chain-operate around large-diameter sprocket wheels at head and foot, and are confined between vertical steel guides in both the "down" and "up" runs of machine.

After an attendant has pushed a roll of cloth from truck to tray, he starts the machine by pushing the starting button, whereupon the descending loaded tray automatically releases the safety gate; and a counterweight, operating within a shock-absorbing air cylinder at the back of the machine, automatically returns the gate to its closed position.

The loaded tray descends to the first floor where a curved-steel deflector plate discharges the roll down an incline. The rigidly attached tray is inverted in passing around the foot wheels to the empty "up," or return, side of machine.

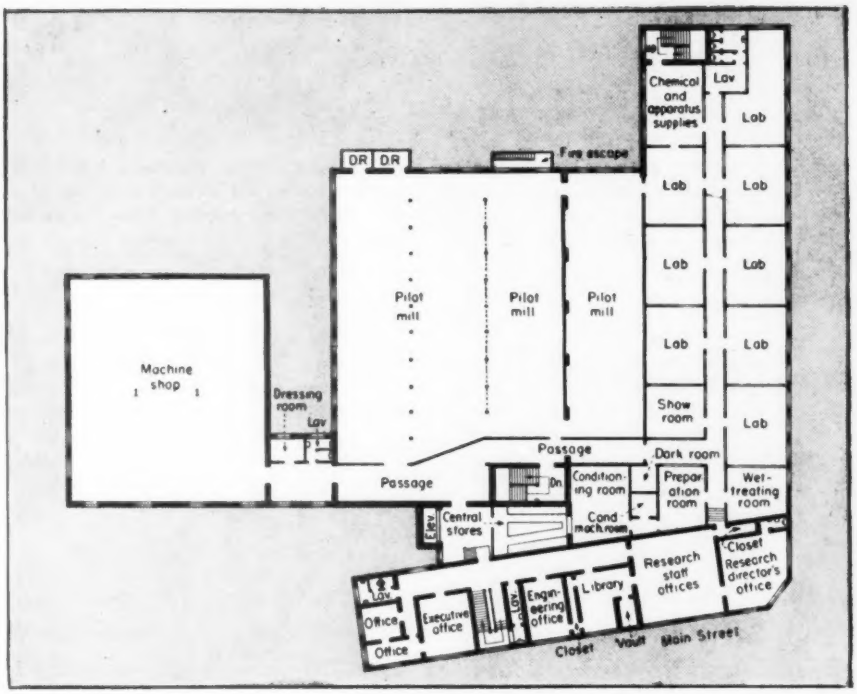
While a tray is discharging at the first floor, another tray comes into position for loading on the second floor, again automatically stopping the machine.

Fig. 4. At first floor delivery point, a roll of cloth rolls down an incline to the floor. The hinged door above the roll closes automatically after ejection of the roll.

Dan River Completes RESEARCH ORGANIZATION

HIGHLIGHTS: *In new laboratories, Dan River Mills coordinates research with its mill production, fabric design, and machine shop—Polarized-light analysis, chemical standards, resin-pigment dyeing, and physical and chemical research of varied character are conducted in group of 12 laboratories—Floor area of research building, including three pilot plants, amounts to 23,500 sq. ft. mostly on one floor.*

By C. MALLARD BOWDEN
Southern Editor, TEXTILE WORLD



This is the floor-plan of Dan River's research laboratory. The preparation and conditioning laboratories are equipped with air-lock, conditioning apparatus, and dark-room facilities. At extreme left is the machine shop operated exclusively for the research staff.

IF PRACTICAL MILL-RESEARCH, as thoughtful leaders say, is the answer to the textile industry's future, then the industry may glimpse a portion of that future in the intensive research conducted in the newly opened laboratories of Dan River Mills, Inc., at Danville, Va. Behind the actual achievements of chemical and mechanical effort, the industry may also observe that mill research, once started, may multiply several fold and that its incidental offshoots, if properly organized, may lead to fruitful ideas for technical progress.

The so-called commercial results of Dan River's research program so far, are a number of new textile processes, centering largely around certain basic methods of applying natural and synthetic bonding agents to textile fibers, slivers, rovings, yarns, and fabrics.

Some of these new methods are in commercial production not only by Dan River Mills but by a considerable number of licensees of the "Fiber-Bonded" processes in the United States and in a dozen or more foreign countries. New dyeing processes, such as the resin-pigment oil-in-water process, have been launched as a result of Dan River research, and other textile developments are reported to be nearing the state of commercial application.

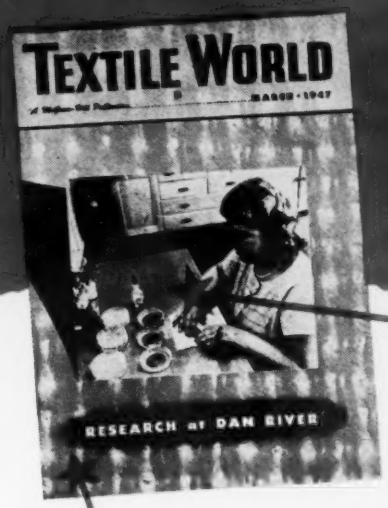
RESEARCH ORGANIZATION. The Research Div. of Dan River Mills, Inc., was established as a separate entity in 1942. When complete integration of all of the company's chemical research, experimental engineering, and mechanical facilities was consummated in the latter part of 1945, the name became the Research Engineering Div.

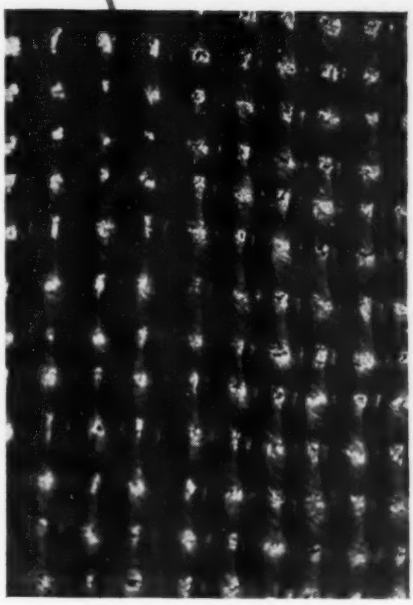
The scientific staff of professionally trained members comprises chemists, engineers, physicists, and other technical experts, together with an administrative, clerical, and maintenance personnel. The program is under the direction of H. M. Chase and Dr. H. Y. Jennings.

The Research Engineering Div. is now domiciled in its own modern building in downtown Danville. The total floor area, as shown in illustration, is all on one floor except for an experimental dyeing section on another floor, and amounts to 23,500 sq. ft. The area provides ample space for 12 chemical and physical laboratories which have been newly equipped throughout in accordance with the most modern engineering practice.

Four large sections are given over to pilot mills devoted largely to the development of various bonding processes as applied to cotton and other textile rovings and yarns, and to chemical treatments of fabrics, including pigment dyeing.

The machine shop is a newly equipped, self-contained unit, devoted exclusively to building new types of machinery used in the fiber-bonded yarn and fabric processes of Dan River Mills, and in pigment dyeing.





The view shown on the front cover was taken in a chemical laboratory in Dan River's building. A young operator is hand-winding yarn to prepare a hardihood-test for a spore by the name of Chaetomium Globosum, better known as fungus or mildew. She places the ball of yarn which has been treated with a mildew-proofing agent in a glass container, adds agar-agar and other delicacies as food for the spore, inoculates the sample with pure culture of the mildew, caps the container, and places it in an incubator with the temperature of 29° C., and a relative humidity of 75%. These conditions are favorable to the growth of the fungus. Through the glass door of the incubator, the chemist may watch the progress of the experiment. If mildew does not develop, the proofing agent is successful against Chaetomium Globosum. Through experimental research, Dan River Mills, Inc., has tested many commercial mildew-proofing agents and developed new ones.

The photomicrograph shown at the left, and used on the cover as background, is of a spun-nylon fabric and was taken by the fabric-analysis laboratory to trace the cause of heavy streaks in the fabric observed by the mill's inspection department. The streaks were readily visible in the photograph; and, by means of the picture and other methods, the laboratory traced the imperfections to the presence of heavy-denier nylon fibers which had in some way entered the blend.

Adjacent to and fronting the laboratories and pilot mills, are the executive offices, the library, and the engineering office. The accompanying floor plan of the Research Engineering Div. shows in considerable detail the broad scope of its facilities.

Coordinated with the Research Engineering Div., and under its general supervision, are various technical control laboratories located at strategic points throughout the mills. These remain, as heretofore, in the various dyeing and finishing and production departments of the mills.

Affiliated with the Research Engineering Div. is the Designing Dept., in which new sales fabrics are originated and perfected. This department maintains a staff of specialists in textile design and operates a pilot mill devoted exclusively to the experimental manufacture of new fabrics. Although located in one of the mill-production units, and concerned primarily with the development of commercial goods, this department works closely with the Research Engineering Div. and is of much practical value in the commercial adaptation of research findings.

CURRENT RESEARCH PROGRAMS. Because of its greatly augmented facilities, the Research Engineering Div. has been able recently to broaden its various research and development programs, some of which have been under way for several years.

In the field of pure research, projects are under way on new types of synthetic resins and on the cotton fiber with special reference to its chemical transformation. These projects necessarily move slowly. No particular commercial end is sought. Upon the appearance of any development which promises commercial possibilities, that phase of the pure research project is transferred to chemists and physicists working specifically in applied research.

In the field of applied research, particularly in treatment of textile fibers, rovings, yarns, and fabrics with synthetic resins and other bonding agents, the Dan River programs are continually being broadened.

Comparatively new discoveries based upon polymerization are said to offer literally thousands of synthetics, differing among themselves, from which may be selected the most suitable to meet any prescribed specification. This is the basis for one line of research.

As the result of constant widening of commercial applications of the bonding processes, new projects in this field are being assigned almost daily to the research staff. The research

Dan River Completes Research Organization *(continued)*

pilot mills are being devoted largely to the perfecting of various types of treated yarns and rovings, and to the further development of resin-pigment dyeing and other dyeing processes recently brought to the commercial stage by Dan River research.

The possibilities of these processes appear to be so limitless, that Dan River Mills has sought the cooperation of the textile industry at large in order to speed development of the resulting industrial cords, yarns, and fabrics. These processes, in actual operation on machines designed and built by the research engineering staff, have been disclosed publicly with a view to stimulating still further the interest and cooperation of the industry.

PROJECTS IN PROGRESS. The applied-research projects now in work at Dan River laboratories and pilot mills may be specifically described as follows:

1. Chemical transformation of the cotton fiber.
   a. Water repellancy.
   b. Mildew- and rot-proofing.
   c. Chemical and physical reactivity.
   d. Physical changes in hand and appearance.
   e. Improved thermal properties.
2. Application of synthetic resins and other bonding agents to fibers, rovings, yarns, and fabrics, by what is known as the fiber-bonded processes for the purpose of:
   a. Increasing tensile strength and controlled stretch in rovings and yarns, for use as industrial yarns of many types, and in the fabrication of industrial yarns and fabrics for various uses.
   b. Utilizing short-staple and waste cottons in treated rovings and yarns largely for industrial uses which heretofore have required higher grade cotton for their manufacture.
   c. Combining improved properties simultaneously with the fiber-bonded processes, such as resistance to abrasion, water-proofing, decreased water absorption, mildew- and rot-proofing, fire-proofing, resiliency, slip-proofing, insect repellance, pigment dyeing, and finishing.
3. New processes in dyeing and finishing. This refers particularly to resin-pigment dyeing of fabrics, in which a basic process was developed by Dan River Research, to continuous vat dyeing at high speed and to union dyeing, also Dan River developments.
   a. Resin-pigment dyeing for certain specific results, as: improvement in fastness of color; higher resistance to abrasion; better surface appearance.
   b. Improved finishes combined with (a) or separately.
   c. Improvements in dyeing machinery and processes.
4. Preparation of textile materials for bleaching, dyeing, etc.
   a. Mechanical research, largely in new machinery designed specifically for fiber-bonded processes and for better results and high speed in vat dyeing.

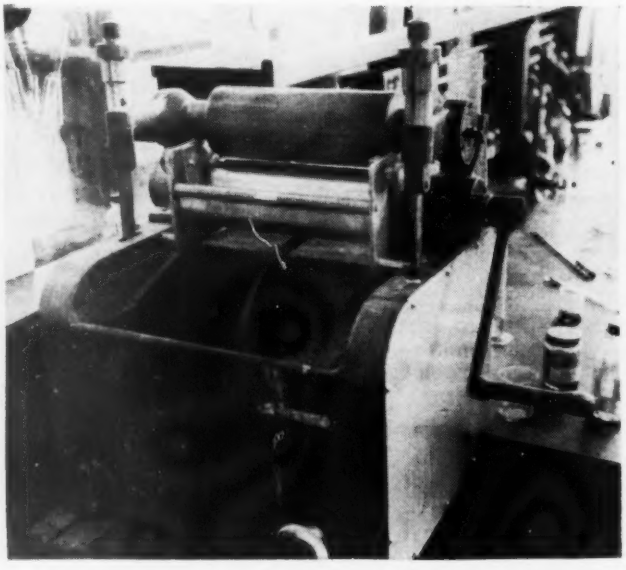
Research, of course, must be tied in with mill activities; and, while Dan River's research laboratories are separate from the mill production department, they are nevertheless closely coordinated with it.

For example, all research laboratories are at the disposal of production men who have special problems to solve. And conversely, the research department receives many valuable suggestions from production men. The net result is that Dan River, through its new facilities for research, offers the unique example of a large mill which not only welcomes new ideas but also develops them.

RESEARCH STRESSES SYNTHETICS. In connection with this research program, emphasis upon synthetic fibers and yarns is noteworthy. In a period when fabric styling may be largely a question of fiber blend or of chemical finish, the aspect of mill research which coordinates technical knowledge and fabric development may, in the long run, be one of the important developments of the industry.

Concrete illustrations of Dan River research are shown in the accompanying photographs taken in the laboratory building. Impossible as it is to give a full description of all the projects, the selected samples indicate not only what this complete mill-research organization may mean to Dan River Mills, but also what it means to the textile industry as a whole in producing actual developments as well as in serving as a structural model for other mills.

In the fabric-analysis laboratory, polarized light is used to identify fibers, along with microscopic observation using ordinary light and other tests.



A scale model of Morrison's Microset padder, which develops seven tons pressure, is installed in the vat-dye experimental laboratory of Dan River's large research building for small-size test runs.

LAWSUITS Clarify Textile-Mill Controversies

HIGHLIGHTS: *Recent decisions hold that, for compensation, injury must be accidental, but exact extent of injury need not be proved positively—Waste found to belong to mill—Employees who struck over closed shop denied unemployment compensation.*

By LEO T. PARKER, *Attorney-at-Law, Cincinnati, Ohio*

If a mill is not frequently in the courts, it is either unusually lucky or it is very small. Medium-size companies may keep a full-time lawyer busy, and the really big ones have a legal staff.

The average mill is rarely in court for flagrant law infraction. Overt illegal acts are infrequent, but there are numerous occasions when a mill may unexpectedly find itself in court for adjudication of a conflict of rights. Accidents to employees often require a judge's ruling on compensation payment. The application of unemployment insurance to irregular circumstances often requires court interpretation. Contractural relations or fire losses frequently entail some unexpected twist which needs legal clarification.

The operating personnel of few mills is thoroughly aware of the legal aspects of day-to-day occurrences. No one would try to make a lawyer out of every department head. It is helpful, however, to give department heads a smattering of the legal side of the miscellaneous events which sometimes break up the routine of the day and ultimately land in court for settlement.

In interpreting the law, the judge often reaches a different conclusion from that which might appear obvious to the layman. It is therefore of some value to know the sort of decisions which have been rendered in the past, not only as a guide for proper handling of unexpected irregularities so as to avoid legal controversies, but also as citations to aid in winning those lawsuits which are unavoidable.

A typical selection of higher-court decisions is given herewith. These decisions involve textile firms and have been handed down relatively recently.

Turn the page . . . FOR TYPICAL HIGH COURT DECISIONS ON LAWSUITS INVOLVING TEXTILE MILLS

FOR YOUR GUIDANCE-- CASE STUDIES OF

FIRE LOSS

Modern higher courts consistently hold that a warehouseman is not liable for fire losses, unless the testimony proves that the fire resulted from his negligence. Generally speaking, a warehouseman is not obligated by a "custom."

For example, in Ayres Co. v. Crowley, 30 S. E. (2d) 785, a merchant who stored cotton waste in a warehouse which burned sued the warehouseman for damages. The merchant proved that there is a custom in the waste-trade that when waste is stored in a warehouse, the warehouseman insures it.

However, since the owner failed to prove that the fire resulted from negligence of the warehouseman, the higher court held the warehouseman not liable. This court said:

". . . Appellant (merchant) was bound by knowledge that he had made no written request for insurance, and there is no evidence of any contract on the part of respondents (warehouseman) to provide insurance, and therefore their failure to issue a receipt could not be deemed to be a proximate of concurring cause of appellant's alleged loss."

UNEMPLOYMENT INSURANCE

According to a recent higher-court decision, an employee who quits his job without good reason cannot recover unemployment compensation. The same rule of law is applicable to employees who are discharged for good cause.

However, a leading higher court held that, if an employer reduces his employees' wage 25% or more, the employees may quit and the state will pay them unemployment compensation. See Willis, 13 So. (2d) 431.

On the other hand, a court recently held that employees who perform acts which cause their non-employment cannot recover payments under the State's Unemployment Compensation Act.

In Badgett v. Department of Industrial Relations, 10 So. (2d) 872, it was shown that the National Labor Relations Board certified a specific union as

(*Continued at top of Col. 2, p. 109*)

WASTE IS MILL'S

Considerable discussion has arisen from time to time over the legal question: "Who owns waste where there is no agreement between the mill and the customer?"

In Lion Yarn Co. v. Flock Mfg. Co., 36 Atl. (2d) 246, the suit involved several thousands dollars worth of "waste" which a mill had kept and sold over a period of several years. The testimony disclosed that the Lion Yarn Co. processed certain materials for its customer. In the process performed by Lion Yarn Co., a certain part of the yarn would be left over as waste. The customer argued that although there was no agreement regarding ownership of the waste, the mill could not own the waste. However, since the waste had accumulated over the six-year period, the higher court refused to hold in favor of the customer and said:

"The evidence impels the conclusion that it was implicit in the contract between these parties that plaintiff (mill) should be entitled to all the waste from defendant's yarn, and that they were under no liability to account therefor. The defendants (customer) acquiesced over a period of six years to the retention of the waste."

FAIR PROOF

An injured employee who claims compensation under the State Workmen's Compensation Act need not definitely and positively prove assertions as to the extent and severity of the injury.

In Dickey v. Springs Cotton Mills, 39 S. E. (2d) 501, reported October, 1945, the higher court held that an award of compensation under the State Workmen's Compensation Act must be based upon evidence and cannot be based upon surmise, speculation, or conjecture.

In this case, an employee in Springs Cotton Mills was injured and was awarded compensation 80% for loss of the right leg, and 50% for loss of the left leg, and the further sum of $2,500 for serious bodily disfigurement. The higher court upheld the award and said:

"It is not necessary that claimant (employee) show the extent of disability with mathematical exactness, but such an award must be based upon evidence which fairly proves the extent or percentage of disability."

TESTIMONY BLOCKS

Whenever the weight of evidence is against an injured employee who applies for injury compensation, the award will be disallowed.

For illustration, in Parmentier v. Moore Fabric Co., 45 Atl. (2d) 876, reported May, 1946, a loomfixer testified

that he was attempting to tighten lagscrews under loom 63, which job required him to use all his strength while working in "tight quarters" underneath the loom. He stated that he braced himself outside the loom; and while in this position, his left leg slipped and struck a pinion gear on the side of the loom; lameness resulted. He sued for compensation under the State Workmen's Compensation Act.

During the trial, a foreman in the mill and an insurance adjustor testified that the employee had stated that the injury to his leg was caused by sitting on it rather than by the described accident. Also, the hospital record showed no history of trauma which caused the disability. The higher court refused to award compensation.

MUST PROVE CASE

In order for an injury to be compensable under the terms of the Workmen's Compensation Act, it must have been occasioned by accident rising out of and in the course of the employment. And the employee must prove his case, otherwise he cannot recover any compensation.

For illustration, in McClain v. Travelers Insurance Co., 31 S. E. (2d) 830, reported October, 1946, the testimony showed that an employee claimed that while he was working for Jefferson Cotton Mills about 10:30 p.m. getting some quills out of a box, he stuck something in his finger; he looked at his finger and did not see anything, and went on home. The next Saturday he reported to the superintendent that he had a sore finger and thought he had something in it that he got out of the box of new quills. He had his finger amputated, but the higher court refused to award compensation under the State Workmen's Compensation Act and said that the employee did not prove that his case was within the scope of the State Workmen's Compensation Act.

NO ACCIDENT

For an employee to recover compensation under the State Workmen's Compensation Act for an accident, he must prove that the injury was accidental.

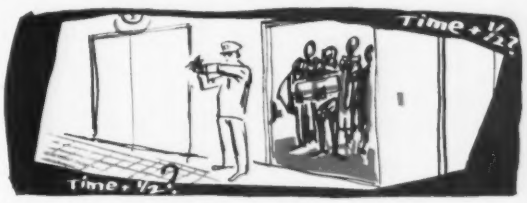
For example, in Burnett v. Appleton Co., 37 S. E. (2d) 269, reported June, 1946, the testimony showed that an employee in a textile mill filed a claim for disability which arose out of an alleged accident resulting in injury sustained while he was pushing a truck of cloth. The employee testified that, as he was pushing the truck up the incline, he felt a pain in right leg which began to swell in a few minutes. Nothing came in contact with his leg and there was no visible evidence of any injury.

Therefore, the higher court refused to hold that the injury was within the terms of an "accident" insurance policy.

the collective bargaining agency for all employees at a mill. Later the mill entered into a "closed shop" agreement which required all employees to be members of this union and pay their dues regularly. Later, another union protested against the closed shop agreement; and to give emphasis to the protest, it called a strike and established a picket line around the mill.

The legal question presented the court was: "Under these circumstances, can the employees who were prevented from performing work recover payments from the state's unemployment compensation benefits?"

The higher court held that the employees who had voted for the closed shop could not recover such payments.



WAGE SUIT

The Fair Labor Standards Act specifies minimum wages and time and one-half for overtime that must be paid to all employees engaged in interstate commerce. Failure of an employer to comply with this federal law entitles the employee to sue and recover double back wages, plus heavy penalties and lawyer fees of $500 and more.

According to a later higher-court decision, the purpose of Fair Labor Standards Act is not to create new wage liability, but to measure existing wage liability by definite standards.

For example, in Greene v. Anchor Mills Co., 32 S. E. (2d) 341, it was shown that the Anchor Mills Co., which operates cotton mills, also owns and partly occupies an office building and rents space therein to the Bell Telephone & Telegraph Co., and other occupants. The question presented the higher court was whether the building service and maintenance employees, who serviced the building, were within the Fair Labor Standards Act.

In holding in the negative, the higher court said: "Until Congress acts again and provides new definitions for those who are 'engaged in commerce,' we are compelled to give the language used a common-sense definition."

Recently, the Supreme Court of the United States rendered important decisions finally settling all disagreements among lower courts regarding payment of wages to employees in office buildings and plants. For illustration, in Vol. 325, United States Official Reports 679, it was shown that a company owns and maintains an office building in which its employees administer, manage, and control the production of goods for interstate shipments. Although the company's factory is located elsewhere, the Supreme Court of the United States held that these employees are within scope of the Fair Labor Standards Act.

AMERICAN SYSTEM
Is Based on Cotton Machinery

HIGHLIGHTS: *Worsted yarn spun on new system developed rapidly since 1943—Lower cost is one great advantage—Better fiber control is another—Five processes used, three of which are drawing.*

By R. J. McCONNELL, *Vice-President, Whitin Machine Works*

SPINNING OF WORSTED YARNS on the American system is a subject that might well be called "hot."

It should be pointed out that the machinery described here, which is used to process worsted fibers, cannot be used to process fibers shorter than 1½ in. As there is not very much cotton in the world this length and longer, it is rather out of order to call it the cotton system.

The roving and spinning frames used are especially developed for long-staple rayon fibers, and were built to process fibers up to 3¼ in. in length. At first, we used our L2 drawing frames which were designed for long-staple rayons, but we had to design new drawings in order to process the worsted fibers successfully.

The first time we processed worsted yarns on this system was in 1938 when a few of our customers asked us to run some worsted tops for them and make some yarn. At first, we looked on it as more or less of a stunt and were not particularly interested, in spite of the fact that the people for whom we made the yarn told us it was all right. For the next few years, we made samples for several mills and received varying reports, some good and some bad; but we were still only interested in the fact that we could make worsted yarn on these machines.

It was during this time that a few mills, including Newnan, where our equipment was used, began to make worsted yarns on a commercial scale. About 1943, interest began to develop rapidly; and we were called upon more and more to run samples for a number of worsted mills. By this time, we had learned a great deal about processing worsted fibers and had made some changes in our equipment which improved the functioning of the machines and resulted in much improved yarns. While interest increased steadily, during the war no machinery was built for this purpose because our whole production was on war materials and priority textile equipment used in the war effort.

This article represents most of the paper presented by Mr. McConnell in New York last month before the American Association of Textile Technologists.

FIVE PROCESSES. The equipment we build today for processing worsted fibers on this new system consists of the following types of machines:

First—drawing arranged in three processes

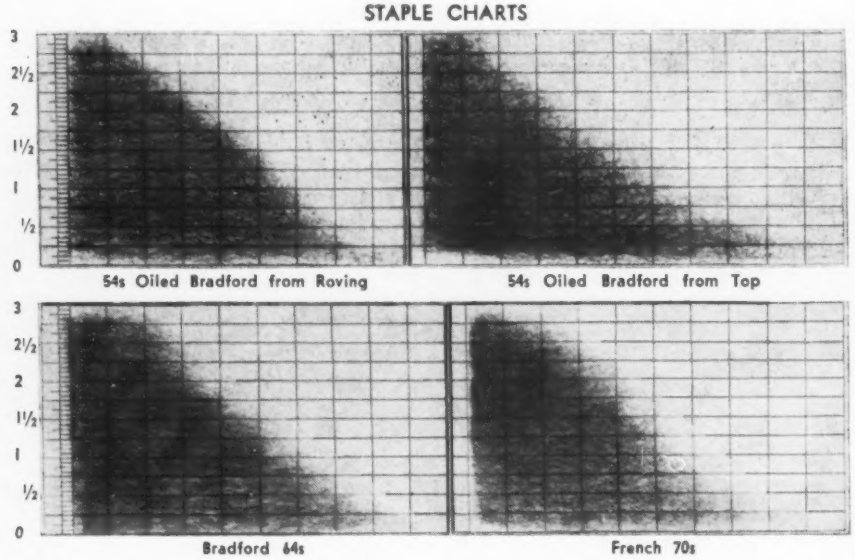
Second—super-draft roving frame

Third—Whitin improved long-draft spinning frame

(Five processes all told.)

The drawing frames are of two models; LWB breaker drawing and LW intermediate and finisher drawing. These draw frames are all four-delivery heads. The drafting and coiling mechanisms are the same in all three lines, but the LWB frame is built to take care of the unwinding of the top. Special attachments are used to regulate the unwinding so that the top will be presented to the back roll of frame in a flat sliver with all false twist removed.

The LWB and LW models are equipped with four lines of metallic rolls, top and bottom, 1½ in. in diameter. These models do not have calender rolls as on regular drawing, but the coiler gears are made with small calender rolls in each plate. This change was necessary due to the great amount of static electricity created, which made it almost impossible to coil and deposit the sliver in the can with the regular tube gear used on all



Above are staple diagrams of typical grades and lengths of wool top found suitable for processing on the American system of worsted spinning.

other types of drawing. We also adopted a gyrating can table in place of the regular revolving type. This was done to eliminate all twist in the sliver in the can. All three lines of drawing are equipped with static eliminators, without which the roving would be difficult to run.

The first drawing, LWB, adds nothing to our system from the standpoint of improving quality. The only functions it performs are to reduce the weight of the top from an average weight of 250 grains per yard to 50 and to coil the sliver in the can. There are no doublings; and, while some parallelling of the fibers takes place, any benefit derived from this is doubtful. However, from the standpoint of economy, it can be done for much less than extra charges of top makers for furnishing 50-grain sliver in cans or packages.

Five cans are put in back of each delivery of intermediate drawing, and with a draft of 5, the sliver is reduced to 50 grains and coiled in the can.

This process is repeated in the finisher line, and sliver is then ready for creeling in super-draft frames. All frames are equipped with regular stop motions, front and back.

ROLL SETTINGS. The matter of roll settings was quite a problem. As one of our technicians expressed it, it is more of an art than an exact science, particularly when the sorting has not been good.

On the breaker drawing, with the thick, bulky top, we usually set the first roll $\frac{1}{8}$ in. to $\frac{1}{4}$ in. over the mean staple length, the second to third $\frac{1}{2}$ in. over mean length, and third to fourth $\frac{3}{4}$ in. over. On intermediate and finisher drawing, we reduce the settings to $\frac{1}{8}$ in. over mean length between first and second, and increase this by $\frac{1}{8}$ in. in next settings.

With these settings, the longest fibers are broken; but no apparent effect is noticed in ultimate yarn. By breaking the small percentage of long fibers, we can set more closely in subsequent operations, which gives better control of the short fibers, which are the biggest problem in making good yarn.

In some cases when the stock is too long to process on the 4-roll system of drawing, we remove one roll. We have found that we can produce, with the longer fibers, just as even sliver.

The draft distribution back to front is 1.31 x 1.60 x 2.40. The front-roll speed is usually at the rate of 100 ft. per min., but we have run as high as 170 ft. per min. with good results.

At 100 ft. per min. and 85% efficiency with 50-grain sliver, the production is 12 lb. per delivery per hour. The cans are 12 in. in diameter; and, when full, they contain about 12 lb. of worsted sliver.

In this drawing process, we have 25 or 36 doublings, depending on whether five or six ends are put up on back of intermediate and finisher drawing.

ROVING FRAME. From the finisher drawing, the stock goes to the roving frame. This frame is the Whitin-Woonsocket super-draft, Model G8, type C4. It has special large rolls, roll stands, and cradles. There are two drafting fields between which are the quarter-turn plates that guide the sliver, or roving, so that the selvages are top and bottom; and the stock which, at this point, is in the form of ribbon, enters the apron rolls standing on edge. The back drafting section consists of two lines of $1\frac{3}{8}$-in. bottom steel rolls with cushion-covered top rolls. The front drafting section is our improved double-apron, long-drafting system with the top-apron roll being gear driven to prevent any possibility of slip.

The RE18 cradle is used, which allows tensing of the bottom band. The top rolls and aprons are weighted. Material used for top-roll covering may be leather, cork, or synthetic; and aprons may be leather or synthetic. The roving frame can be made in any of the standard sizes. Up to now, the 8x4x7-in. size has been almost universally used. Roving from 2.0 to 6.0 worsted count can be made on this size frame.

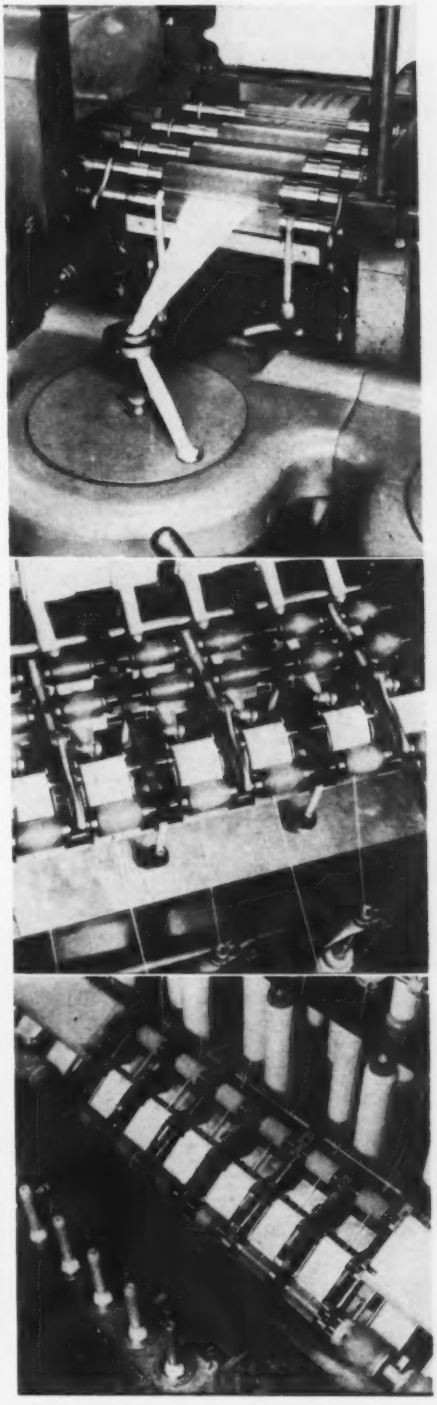
The package contains about 15 oz. net of roving. The normal speed of this size frame is 1,150 rpm. of the spindle; but due to low twist used in making worsted roving, the speed is usually from 750 to 900 rpm. The amount of twist inserted in the roving varies from 0.6 to 1.0 times the square root of the number, depending on staple used and hank roving being made.

ROLL SETTINGS. In setting rolls, the front section is not changed and is $3\frac{1}{2}$ in.; second to third is not adjustable and is $3\frac{7}{16}$ in.; third to fourth rolls are set $\frac{1}{4}$ in. over the mean staple length. Top rolls are rather heavily weighted. 36 lb. on front roll, 15 lb. on second, and 25 lb. on each of the third and fourth top rolls. The overall distance from front to back rolls is 11 in.

Draft distribution is arranged so that most of the draft is in the front or apron section. For example, if the total draft is 18, we will draft 3.3 in back section and 5.4 in front. The efficiency on these frames varies with length and runs from 80% on a 138-spindle frame to 87% on a 72-spindle frame on worsted hank of 4.5.

End breakage on 4.5 hank should average 3 to 4 ends per 100 spindles per hour. Production on 4.5-hank

AMERICAN SYSTEM



Drawing on the LW frame, shown at top, is the first of the three drawing processes used in the American system for producing worsted yarns. Next is shown the super-draft roving and under it long-draft spinning. There are only five processes needed in the American system.

worsted at 85% efficiency and spindle speed of 750 rpm. would be 0.30 lb. per spindle per hour.

The next and final process is spinning, and the frame used is our Model F2. We have been using frames of 4-in. gage, 240 spindles, oil-lubricated rings usually 2½ in. in diameter, 8-in. traverse, reverse (S) twist, and tape drive. Up to the roller beam, this frame is practically our standard cotton-type frame. From roller beam up, it is special. The roll stands are our high-roll, 30°-angle type to minimize the pull on the yarn. Steel rolls are 1⅜ in. in diameter, apron rolls are gear driven, and drafting principle is double-apron type. Top-roll-weighting arrangement is designed so that frame can run with or without break draft.

The creel can be either standard or umbrella type, depending on what size roving bobbin is to be run in the creel.

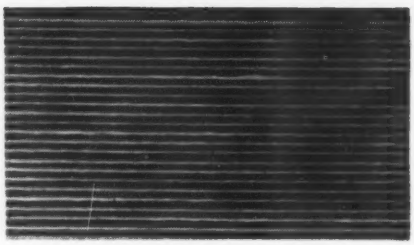
Spindle speeds up to 7,200 rpm. have been run, depending on number of yarn desired and amount of twist required. On coarse numbers, for example 8s with 3½ turns of twist, the spindle speed would be around 3,000 rpm.; spinning 30s with 15 turns, it would be 7,200 rpm. The ratch on spinning is 7 in., divided about equally between front and apron roll and apron roll to back.

Overall weighting on top rolls is 51 lb. Maximum draft advocated is 14. When regular weight distribution is used, the break draft is 1.30, and balance of draft is between first and second or apron rolls.

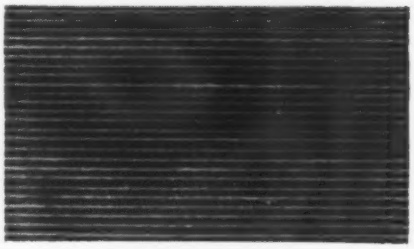
Efficiency on spinning averages 92% on 36s worsted count. Actual end-breakage tests under mill conditions have run as low as eight ends per thousand spindles per hour. A good average would be 25 to 35 ends per thousand spindles per hour. From the top to finished single 36s on the American system, there are five processes and usually 50 doublings.

WORK LOADS. Conservative work loads for this system would be as follows: LWB drawing, 20 deliveries per operative; LW intermediate and finisher drawing, 32 deliveries per operative.

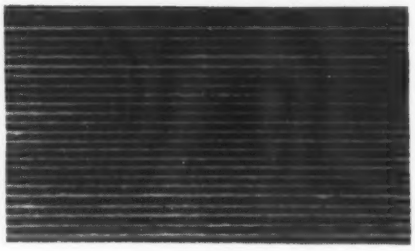
This means that tending, cleaning, and doffing 20 deliveries of LWB drawing with production of 336 lb. per hour or performing these tasks on 32 deliveries of LW intermediate and finisher drawing with production of 448 lb. per hour would be a fair job per operative. The reason for difference in work load between LWB and LW drawing is that it takes more time to arrange the top for unwinding, and there is also more end breakage on the LWB process.



20s Bradford—t.p.i. = 9½



American System 20s—
t.p.i. 15 B.F. = 1025 = Mean = 2¾ in.



28s Mule Spun

Yarn spun on American system compared to commercial Bradford and mule spun yarns.

On the super-draft roving frame on 4.5 hank worsted, one operative per two frames of 120 spindles each (operative doing cleaning, creeling, and tending) would have a very generous fatigue allowance.

On spinning with spindle speed of 7,200 rpm., and running 36s worsted at production of 0.036 lb. per hour, eight sides of 120 spindles each, or total of 960 spindles, would be a fair job with average end breakage of 35 ends per thousand spindles per hour.

Doffers can handle 800 bobbins per hour. Other jobs such as oilers, cleaners, section hands, and general would be same as on regular cotton machinery.

With regard to length of fibers which can be processed on the American system, 56s to 64s top with a maximum length of 4 in. gives the best results; tops shorter and finer run very well. Tops must contain 2 to 3% oil. Relative humidity should be between 55 to 60% at 75 to 80° F. room temperature.

Yarns spun on this system resemble and compare most favorably with yarns spun on the French system; 30s to 40s worsted is about the top limit. We have spun up to 50s; but, in our opinion, the quality was not up to good commercial standards.

INDUSTRY CAPACITY. By the end of this year, there will be nearly 100,000 spindles of this equipment running in 19 different mills. The potential capacity of these mills on 30s worsted yarn would be at the rate of 18,000,000 lb. per year on a two-shift or 80-hr. basis.

In addition to these spindles which have been bought to process 100% worsted yarn, there will be 70,000 spindles of spinning and complementary roving which could be changed from processing long-staple rayon to processing worsted; the only requirement would be to purchase top weighing 50 grains per yard; and one of the big top makers is already producing top of this weight.

So much for the machinery. What are the advantages? To what extent are these offset by the disadvantages?

One advantage is that the equipment would not require so large a financial outlay as the regular equipment.

From the standpoint of labor cost, there would be a considerable reduction. For example, comparing two layouts of 4,000 spindles, one on regular system and one on American, there was a difference of 10 operatives in favor of the American system. With an average wage of $1.00 an hour, this would mean a saving of $10.00 per spindle per year on a two-shift basis.

The roving frame and spinning frame with the double-apron drafting system are superior to the machines used for the same purpose on regular systems from the standpoint of fiber control.

One disadvantage is the small number of doublings, which make well-combed, even tops an absolute necessity. Another is the lack of flexibility, as only tops of certain lengths can be run. There are probably many more advantages and disadvantages but those given are the most important.

There is no question that satisfactory yarns can be made on this system at a lower cost than on the regular. Among the mills which have this equipment, some are and have for years been making worsted yarn and fabrics on the regular systems. These mills, in some cases, have had this new system running side by side with the regular system and have been making daily comparisons for the past two years. The great danger is that some of the mills using this equipment may not have the proper knowledge and respect for the worsted fibers, and what might happen could be serious.

Spinning Machine
DRAFTS WITHOUT ROLLS

HIGHLIGHTS: *Machine also combs fibers in the same operation—Twist is used to help control fibers being drafted—Can be used for extremely short staple—Intermittently operating dogs and stops replace rolls*

By C. W. BENDIGO
Editor, TEXTILE WORLD

DRAFTING OF TEXTILE FIBERS can be accomplished without the use of any rolls in a machine invented by B. H. Foster, of the U. S. Rubber Co.—but more than this, extremely short staple can be drafted, and it can be combed during the spinning operation.

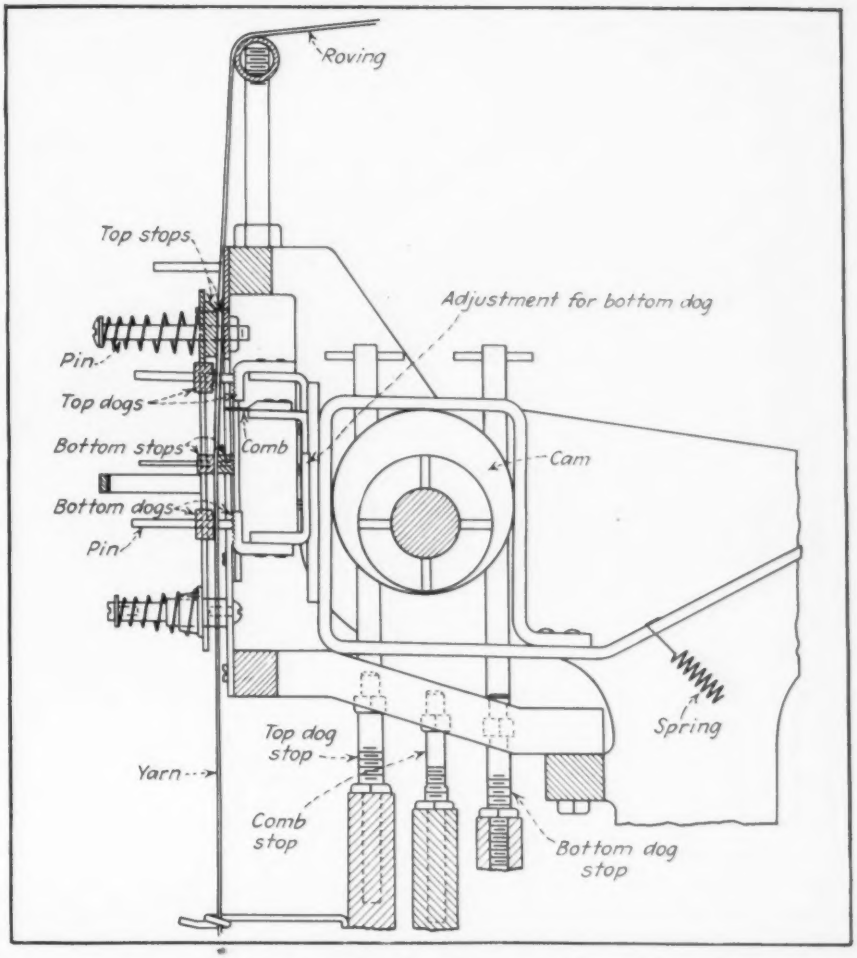
This new method of drafting and combing during the spinning operation has other inherent advantages: (1) drafting is started slowly, fibers are not suddenly pulled through their surrounding fibers, as is the case when roll drafting is used; (2) in combing, there are no noils removed; (3) draft of each spindle can be set individually, so that a variety of yarns can be run on the same frame; and (4) a softer yarn is produced, it is claimed.

DRAFTING PRINCIPLE. In place of rolls, the machine uses two sets of dogs, as shown in the drawing. The top dogs move only a fraction of the distance that the bottom set travels—the difference, which is adjustable, is the amount of draft. For the first part of the movement, both dogs travel together; but the top dogs' movement is arrested, and the bottom dogs continue. Combing takes place between the two sets of dogs; the distance that the comb moves is equal to the distance that the bottom dogs travel. Thus, actually, the fibers held by the top dogs are the ones combed.

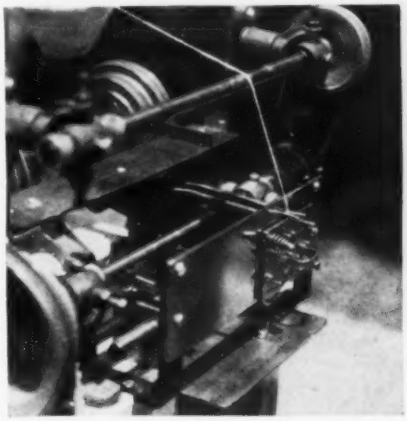
The top and bottom dogs, which are directly driven by the cam, actuate their companion dogs. The one dog is coupled to the other by means of a pin, as shown in the drawing.

As the two sets of dogs and the comb retract, two sets of clamps hold the roving. The one set is above the

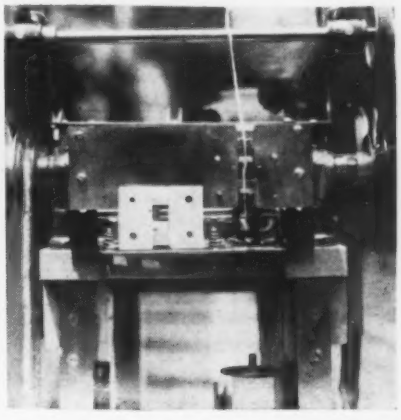
(Continued on page 188)



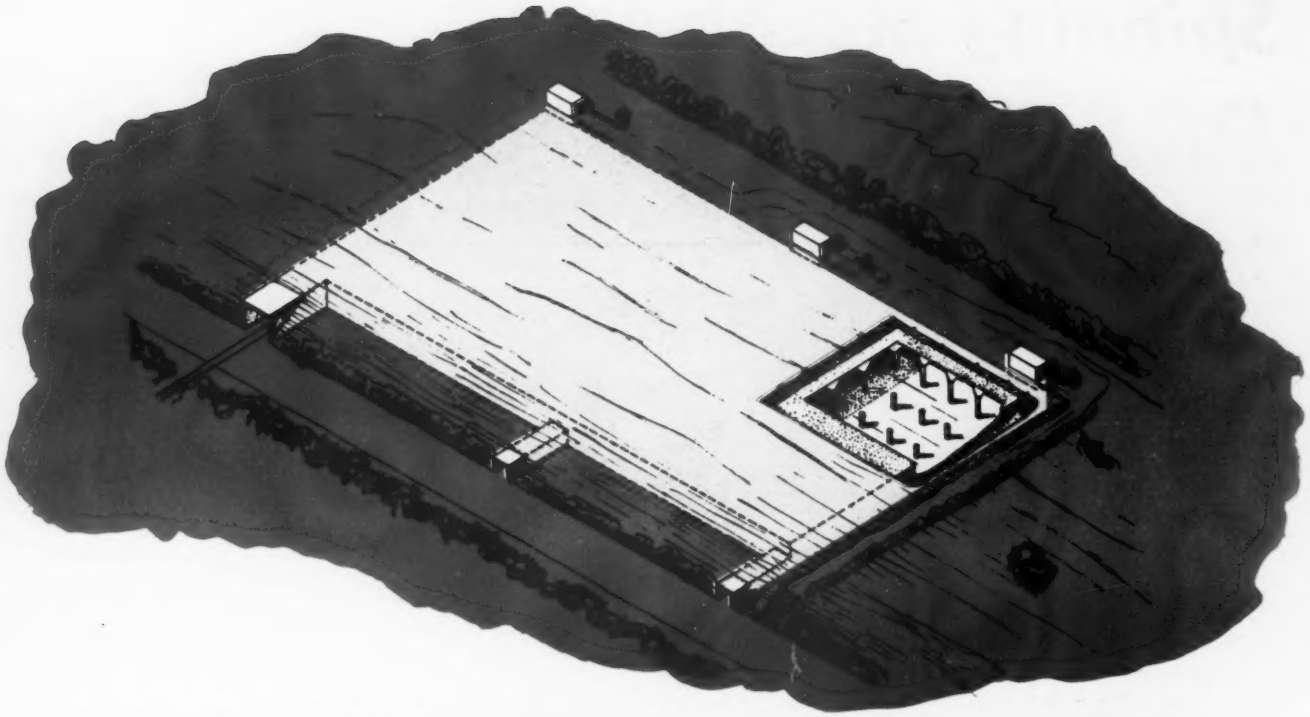
In position shown here, stops are holding the roving, while dogs and comb are just ready to move forward and engage the fibers. Note the two rods from the dogs on the right; they actuate the up-and-down movement of the outer dogs.



In this photograph of a single unit of the drafting mechanism, note the degree of drawing represented by the difference in diameter between the roving and yarn.



The front plate of the drafting mechanism has been removed here to show the two sets of dogs and stops. The combing attachment does not show in this photograph.



UNDERGROUND PLANTS
Are Feasible for Textiles

HIGHLIGHTS: *Preliminary estimates of cost indicate only slightly increased initial expense—Dirt-covered, all-concrete structure would be proof against all natural hazards and vulnerable only to direct hit by atomic bomb —Maintenance of optimum operating conditions in underground plant is practically unaffected by outside weather—Elimination of outside maintenance decreases upkeep cost.*

By JOHN A. McPHERSON, JR., *Textile Engineer, The McPherson Company*

CONSIDERABLE INTEREST has been expressed recently on underground locations for vital industries, primarily with the idea of making them safe against bombings that would certainly occur in another war.

For many years, some engineers have strongly advocated totally enclosed structures for textile mills; and many recently designed plants are adopting this feature in their plans. Since the war, experienced engineers have been

The importance with which the protection of plants from atomic bombs is considered by high military men and the regard being given to underground construction is indicated by the following report from the McGraw-Hill Washington Bureau.—Editor.

Manufacturers counting on future military contracts should watch Army and Navy moves on dispersal and on construction of subterranean plants.

The military has no law to compel but can only suggest that war suppliers disperse or subsurface their facilities. But if peace fails and if air attack threatens, especially with atomic warheads, Congress could order essential industry to disperse or to burrow under the surface.

The Army Corps of Engineers is making a survey of abandoned mines and caves that might accommodate plants, and will report soon to the Army-Navy Munitions Board. War Department's Civil Defense Board, under Maj. Gen. Harold R. Bull, is scanning the general problem of civilian protection from air attack. Army Air Forces is planning some test installations. The Navy is right in there, too. Army Ordnance is on the offensive of the same problem.

They're all trying to foresee the means of shelter from wars to come. They have a little solid information: data on plant protection in Japan, Germany, England, Sweden; their own figures on how much of what type coverage it takes to damp a bomb blast; and their current survey of caves and mines.

War Dept. officials, eyeing figures by their engineers, have expressed the opinion that burrowing into hillsides might be cheaper than either caves or surface construction—depending on the formation. They think soft rock, which can support wide ceiling spans, is best, and there seems to be plenty of it.

If the government decides that subterranean production is good strategy, it'll mean excavation on a big scale. Reports on Sweden's buried plants indicate that costs run about 15% more than surface construction. But maintenance savings in the absence of need for weather protection, fencing, guards, etc., soon even the score. *Blaine Stubblefield*

Fig. 1. *Isometric view of layout for underground print-cloth mill shows cut-away section to reveal method of construction. Dotted lines outline total extent of plant beneath the surface.*

making studies on underground structures, based on their military observations and their experiences in bombing raids during the late war.

Underground plants are not altogether novel or new. Under war conditions in Europe, many operations for essential production were carried on in caves, mines, and subterranean plants. Sweden transferred many manufacturing operations underground in fear of German air raids and surface attacks. They have found the results to be so satisfactory that they will continue to operate them in that manner. They further state that they will build future plants underground rather than on top of it.

Considering the protection obtained against bombing by the design shown in Fig. 1, it should not be assumed that complete safety would be obtained against a direct hit of an atomic bomb. But, the possibility of concealment would make the plant a poor or questionable target, and its heavy protection of earth and concrete would give protection and shelter against the lethal after-effects of a nearby bomb hit.

Of course, the value of the protection afforded by underground plants in time of war is not given any monetary consideration. They do have an insurance value against such a contingency. Every sane person hopes and prays that provision will be made against war's recurrence, especially with the knowledge that another war would be terrible beyond any in the past. Also, it is certain that our country could not escape disastrous effects. Every realistic, thinking person knows that wars have so far been recurrent and may possibly occur again. It seems logical and prudent, therefore, to provide some measure of protection against this contingency, especially when it is possible to do so without paying a prohibitive price.

MANUFACTURING ADVANTAGES. While the greater factor of safety of underground plants in time of war is obvious, it has been discounted in this evaluation, even though this factor of safety would have an incalculable value in event of hostilities and to this extent might well be recognized by the governing bodies in the form of a special tax exemption, or even subsidies, if necessary.

The first question usually asked is,

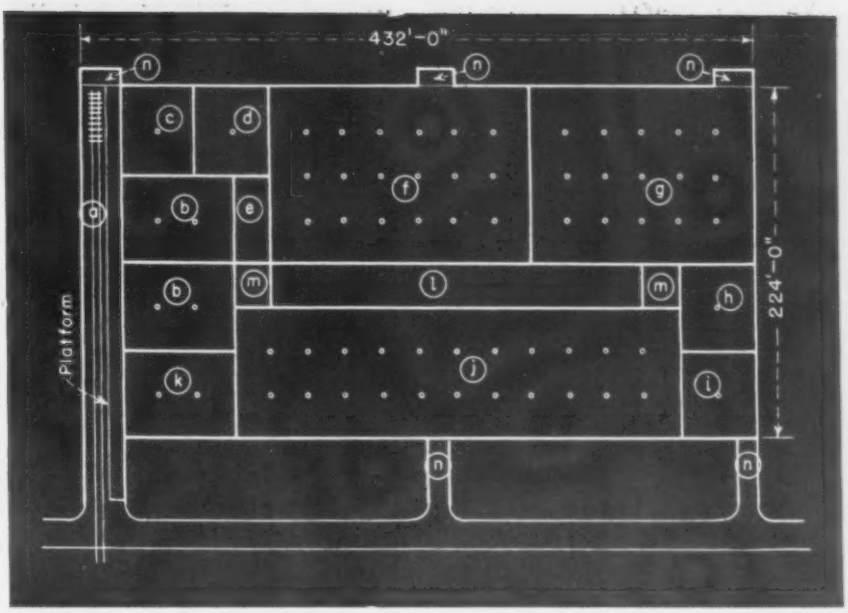


Fig. 2. *Floor plan of single-story, underground, print-cloth mill shows interior subdivision into departments, as follows: a, railroad spur; b, cotton storage; c, opening; d, picking; e, waste; f, card room; g, spinning room; h, spooling and warping; i, slasher room; j, weaving and cloth rooms; k, cloth storage; l, service area, including offices; m, air-conditioning equipment; n, exits.*

"How much more would such a plant cost over a conventional design?" Preliminary studies which have been made indicate that underground plants would be very little more expensive. Accompanying this article is a preliminary estimate that will indicate how the cost of underground construction would compare with more conventional types.

In this study, a typical textile spinning and weaving mill has been laid out as an underground unit, and some of the main features of its design have been studied and compared. A summary of the advantages from a manufacturing standpoint is given in order to indicate several definitely superior factors which an underground structure would possess. At the same time, there are definite disadvantages to such a plan, and these are also taken into consideration.

The typical design considered in this study is based on a standard textile unit equipped to manufacture 64x60 print cloths, 36 in. wide, and would have 10,596 spindles and 200 40-in. looms. All operations underground are suggested, from raw-cotton storage to finishing and shipping.

(*Continued on page 220*)

Cost comparison of building 10,596-spindle, 220-loom mill for producing 64x60 print cloth: A, underground; and B, conventional above-ground structure.

	A	B
Excavation and backfill	$80,000	$10,500
Column footings (interior)	20,400	3,650
Exterior wall footings	11,000	5,650
Interior wall footings		2,200
Floor slab	35,600	35,600
Concrete platform	4,000	4,000
Exterior walls	102,500	82,000
Interior walls		48,000
Roof slab and columns	214,200	145,000
Insulation		42,400
Roofing		20,000
Gutters, downspouts, etc.		1,500
Contingencies and overhead	103,600	80,100
TOTAL COST	**$571,300**	**$480,600**
COST PER SQUARE FOOT *(approx.)*	**$5.71**	**$4.81**

KNITTING YARNS Require Skillful Preparation

HIGHLIGHTS: *Spinning organization is developed by mill to give best knitting results from cotton yarns — Organizations may be adjusted for synthetic or wool mixes — Proper blending and close tolerances in carding and spinning are necessary in knitting-yarn manufacture.*

By R. M. McNEAL

WHEN COMPLETE ORGANIZATIONS for manufacturing mixed-fiber knitting yarns on the cotton system are laid out, the percentage of each fiber used in the blend is the first and most important consideration. Specifications sent by knitting mills to yarn mills generally give full details as to material, yarn number, twist per inch, skein strength expected, size of cones, and other information required for the manufacture and delivery of yarn of the desired size and quality. When unidentified samples of blended yarns must be matched, yarn mills make chemical and microscopic tests to determine the amounts of individual fibers and make physical tests to determine the counts and strength of the yarn.

The combinations of fiber blends in knitting yarns are almost unlimited in nature and proportions. Yarns of 100% cotton, either carded or combed, are required in the greatest quantities. (See the accompanying table for a technical layout of spinning used by one large knitting-yarn mill.) Cotton wool blends of 25/75 ratio are in constant demand, but cotton-wool blends of 50/50 ratio are more popular. Acetate and viscose rayon, in deniers from 1.0 to 3.5, are combined with cotton, wool, or 60s Aralac in varied proportions.

BLEND DETAILS. In cotton-wool blends, the amount of wool is governed by the quality of the knitted garment required; but yarn mills must hold to close tolerances on the percentage of wool contained in the finished yarn. The exact knitting-mill tests will detect any reduction from specified percentage, and any increase over specified percentage of the expensive wools means a loss to the yarn mill.

Blends containing cotton, entirely or in part, call for skillful classing and careful bale selection. For medium- and fine-quality knit goods, 1 to 1 1/16-in. cotton, of middling color and leaf, is generally used; and for the higher-quality fine numbers, 1⅛-in. strict-middling cotton is used.

Cheaper yarns for lower-quality knit goods are made from mixes of strict-low-middling, low-middling, irrigated, and machine-picked cottons, with varying proportions of strips, noils, and reworkable waste. The purpose for which these yarns are used will determine the composition and quality of the ultimate fabrics.

Wool is generally bought in the form of top, either white or dyed, and cut to the desired staple length. Synthetic fibers of the required deniers are received cut to the specified lengths. Practice and skill are required to select fibers of correct denier, length, character, and in such proportions that the yarn and fabric will have the desired properties and appearance.

BLENDING METHODS. Various methods may be used to blend the fibers selected. Where the blend is entirely of cottons of different characteristics, it is necessary to have the number of bales selected for each mix opened in front of the opener feeder. Care must be taken that the same amount is taken from each bale at each feeding cycle.

There are two methods generally used to blend wool. In the first method, cut wool top from the staple cutter is run through one section of a picker without lapping. The loose wool is then fed into the Bramwell feeder and run through the woolen card. The blends are made on the back of the breaker drawing by creeling the required number of ends of each material. However, the sandwich method is recommended by many manufacturers for cotton-wool-synthetics blends. In this method, weighed amounts of each kind of fiber are spread in horizontal layers on the floor. Stock is fed in vertical sections from this built-up pile. Thus, each feeding is a cross section of the mix.

Many advantages are claimed for the sandwich method of blending. A more uniform blend is obtained, particularly when three or more different stocks are mixed, since streaks are likely to occur when the mixing is done on the drawing. In the latter method, constant vigilance is also required to maintain the correct number of cans of each stock at all times in the drawing-frame creel. Unless cans are plainly marked, mixups are likely to occur and cause wide variations in fiber-percentage content.

KNITTING-YARN PROCESSING. Some synthetics are difficult to process alone

KNITTING AND HOSIERY YARNS

(Ring frames, 1-in.-dia. front rolls, double roving in creels)

Yarn No.	Staple length	Rpm. spindles	Twist per in.	Twist multiplier	Rpm. front roll	Lb. per spindle hour	Stoppage allowance	Expected skein strength	Hank roving	Draft	Ring dia.	Traverse length
2		2900	4.2	2.97	220	.549	20%	750	.50	8.0	2 in.	8 in.
3		3500	5.2	3.00	214	.356		586	.50	12.0		
4		3925	6.0	3.00	208	.259		480	.75	16.6		
5		4250	6.7	3.00	202	.201		350	.75	13.3		
6		4550	7.4	3.04	196	.163		293	1.00	12.0		
7		4700	7.9	3.00	190	.139		207	1.25	11.2		
8	7/8"	4950	8.5	3.00	185	.115		187.5	1.25	12.8	2 in.	7 in.
9	to	5125	9.0	3.00	181	.100		175	1.50	14.4		
10	1"	5275	9.5	3.00	177	.090	18%	166.5	1.50	13.4		
11		5375	9.9	2.98	173	.080		159	2.00	14.7		
12		8550	10.4	3.00	170	.072		146	2.00	12.0		
13		5700	10.8	2.98	168	.066		135	2.00	13.0		
14		5850	11.2	2.99	166	.060		128	2.00	14.0		
15		5925	11.6	3.00	164	.058	15%	127	2.00	15.0		
16		6100	12.0	3.00	162	.053		120	2.00	16.0		
17		6225	12.4	3.00	160	.049		108	2.50	13.6		
18		6300	12.7	3.00	158	.046		100	2.50	14.4		
19		6425	13.1	3.00	156	.043		92	3.00	12.7		
20		6500	13.4	3.00	154	.042	12%	87.5	3.00	13.3		
21		6600	13.7	2.98	153	.040		83	3.00	14.0	1 7/8 in.	
22		6725	14.1	3.00	152	.038		80	3.00	14.7		
23	1"	6800	14.4	3.00	150	.036		78	3.00	15.4		
24	to	6825	14.7	3.00	148	.034		73	3.50	13.7		
25	1 1/8"	6875	15.0	3.00	146	.033	10%	70	3.50	14.3		6 1/8 in.
26		6375	14.0	2.74	145	.031		67	3.50	14.9		
27		6475	14.3	2.75	144	.029		63	3.50	15.4		
28		6500	14.5	2.75	143	.028		58	3.50	16.0		
29		6600	14.8	2.74	142	.027		57	3.50	16.6		
30		6650	15.1	2.76	140	.026	9%	56	3.50	17.1		
31	1 1/8"	6625	15.3	2.74	138	.025		54	3.50	17.7	1 3/8 in.	
32	to	6675	15.6	2.72	136	.024		53	4.00	16.0		
33	1 1/4"	6650	15.8	2.72	134	.023		52	4.00	16.5		
34		6625	16.0	2.74	132	.022		51.5	4.00	17.0		
35		6650	16.3	2.76	130	.021	8%	50	4.00	17.5		
36		6625	16.5	2.74	128	.020		48	4.25	16.7		
37	1 1/4"	6075	15.2	2.50	127	.019		47	4.25	17.4		
38	to	6100	15.4	2.50	126	.019		46	4.50	16.4		
39	1 1/2"	6125	15.6	2.50	125	.018		44.5	4.50	16.9		
40		6150	15.8	2.50	124	.018	7%	44	4.50	17.3		

A table of spinning-frame speeds, twists, and organizations for cotton yarns as used by one knitting-yarn mill. The table may be used for synthetic or wool blends if proper adjustments are made. Wool and cotton blends will require an increase in the amount of twist for many yarn numbers, while rayon and rayon-cotton blends will generally require less twist than those indicated in the table.

Front-roll speeds and productions must be changed to compensate for any changes in spindle speeds or twists from those given here.

The drafts are conservative and may be modified to permit the use of available hank rovings. Some knitting mills use long-draft equipment that produces spinning drafts considerably higher than those in the table.

due to static and other troubles. When cotton is used, the mixture is easier to process through pickers and cards by the sandwich method. If a mixing picker with an extended apron for a four-lap feed is available, it will be found suitable for many fiber blends.

The use of cardboard tubes on the lap bar of the picker is recommended for all synthetic blends. A small creel with eight bobbins of intermediate roving set over the calender rolls, with strands running into the lap, will prevent the lap from splitting on the cards.

Treatment on the picker is practically the same as for regular cotton stock. Coarse rayon and Aralac may require increased fan speeds to spread stock properly on the cages. Lap weights and production remain the same as for cotton. Grid bars may be closed up on all-synthetic blends. Carding beater speeds of 850 to 900 rpm. are recommended.

Card speeds and productions are the same as with regular cotton stock. On 100% synthetic blends, flats may be slowed to 1 in. per min., flat settings increased to 0.012 in., with close front- and back-plate settings.

Drawing settings are increased for the longer-staple wool and synthetic blends. Well-varnished cushion rolls are preferred on many mixtures. Metallic rolls will often overcome or reduce static troubles on wool and coarse synthetic blends. When combed cotton is used in blends, the noils removed will vary from 12 to 15%, and the mixing will be done on the breaker drawing.

One-process slubber roving is used successfully in some mills on numbers up to 12s. Two roving processes are generally used on numbers from 12s to 40s. These processes include 10x5 long-draft slubbers and 8x3½ fine frames. Roving-frame drafts, speeds, and twists are conventional on cotton and wool blends; and lower twists are required on all-rayon blends. Leather, cork, and synthetic rolls give equally good results on frames.

SPINNING. Double roving in the creel is the normal practice in the spinning room; and conservative drafts, similar to the conventional drafts used in making weaving yarns, are employed, although there is a trend toward long draft in combed-yarn mills. Very few knitting-yarn mills run single-creeled roving in spinning, because double roving is considered necessary for fine-quality yarns and well worth the increased cost.

Leather top-roll coverings are generally preferred, but cork and synthetic coverings are used successfully in many mills and are accompanied by large reductions in cost due to the advantage of rebuffing. Both single- and double-apron long-draft systems are used. Roll settings in spinning are not critical, and a fairly wide range of staple lengths may be run with no change in settings.

Considerable variation in drafts is allowed by the spinning organization for knitting yarns in order to eliminate many in-between hank rovings. This policy is a good one if not carried to the extreme, since it reduces the number of roving sizes and in many cases permits a yarn-number change without the production loss and labor cost incurred during creel changes in the spinning room.

Spindle speeds and twists for knitting yarns are lower than for filling yarns. Front-roll speeds are comparatively high because of the lower twists; but soft twist is demanded by the knitters because it prevents yarn kinks, reduces needle breakage to the minimum, and gives a soft hand to the fabric.

Because of the softer twist and lower yarn strength, the knitting-yarn spinner must select travelers more ac-

(Continued on page 198)

Installation Technique Improved For METALLIC CLOTHING

HIGHLIGHTS: *Chokes at sides of cylinder and doffer result from faulty installation of clothing—L wire should be placed flush with edge of cylinder and against doffer—Only one to two hours needed for grinding card wire.*

By C. R. PEASE, *Overseer of Carding, Columbus Mfg. Co.*

IMPROVED TECHNIQUES for installing metallic card clothing are proving successful in eliminating some of the objectionable features heretofore associated with the use of this type of clothing. One of the chief disadvantages to using metallic clothing has been the formation of chokes between the card housing and the sides of the cylinder and doffer. [T. W., Oct., 1945, p. 103]. A better method of installing the clothing can prevent the formation of these chokes and also reduce somewhat the amount of fiber flying around and under the card.

Basically, the trouble with the method usually employed for installing the clothing has been that an area ½ in. or more in width at each end of the cylinder and doffer has been left unclothed. Fibers in the selvages of the lap were out of control when they reached the cylinder. Consequently, these fibers were acted upon only by the air currents which circulated within the card.

To correct this condition, it is necessary to install the clothing in such a way that no unclothed areas are left at the ends of the doffer and cylinder. The following step-by-step procedure has been found satisfactory.

CLOTHING PROCEDURE. Dismantle the card, leaving only the card sides, cylinder, doffer, and bearings in place. Remove the old clothing from the cylinder and doffer.

The first improper practice is usually followed at this point; namely, grinding the surface of the cylinder and doffer. This practice is not only unnecessary, but it is also quite undesirable. The castings of which the cylinder and doffer are made are only comparatively thin shells, and no cutting should be done to weaken them. The cylinder and doffer should be trued with the balancing weights with which they are equipped, and any grinding that is needed to ensure a smooth working surface for carding should be done on the base wire, Fig. 1, *b*, and carding wire, Fig. 1, *d* and *e*.

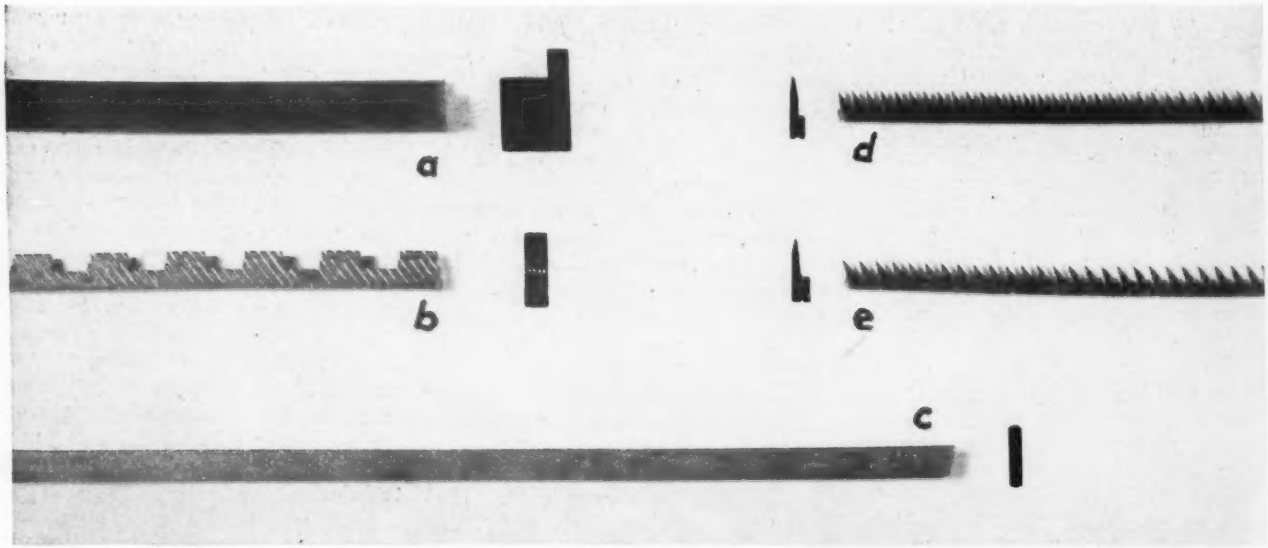


Fig. 1. Wire parts needed to install metallic clothing on a cotton card are: L wire **a**, *base wire* **b**, *flat wire* **c**, *cylinder carding wire* **d**, *and doffer carding wire* **e**. *Cross-sections have been drawn twice size.*

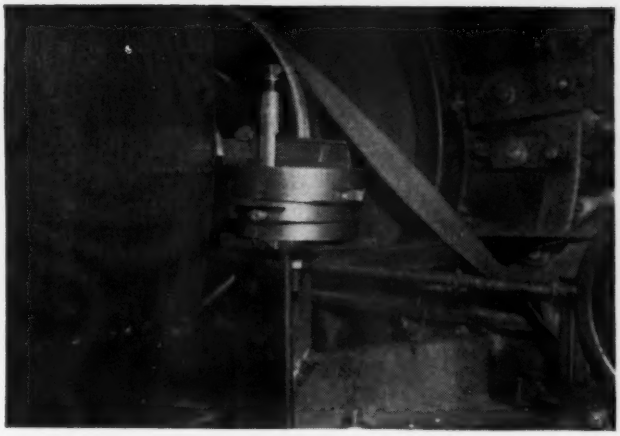


Fig. 2. Cutting the grooves for the L wire and flat wire at the edges of the cylinder and doffer requires the use of a cutting tool. This tool, made in a mill shop, is mounted on the card housing at the point where the lickerin operates; and the cylinder is started up. For the L wire, a groove 1/16 in. wide and 3/32 in. deep is cut 3/16 in. from the edge of the cylinder. The L wire, when driven into the groove, will fit flush with the cylinder edge.

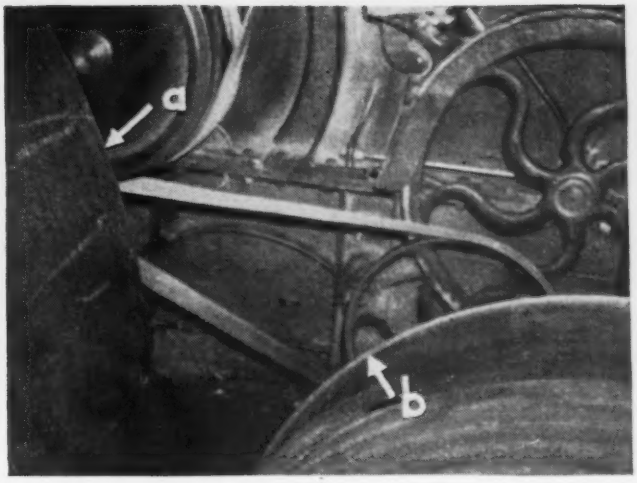


Fig. 3. The cylinder shell is not equipped with a head at point a, such as the doffer has at point b. The usual practice is to cut off the doffer head before cutting the groove for the L wire. This practice is not recommended. By leaving the heads on the doffer, additional support for the L wire is gained.

The surfaces of the cylinder and doffer shells should therefore be cleaned only with a wire brush and waste.

On the perimeter of the cylinder, $\frac{7}{16}$ in. from each side, cut grooves $\frac{1}{16}$ in. wide and $\frac{3}{32}$ in. deep for receiving the vertical flange of the *L* wire, Fig. 1, *a*. [See Fig. 2 for a view of the cutting tool in operation.] Care should be observed to cut the groove to these exact dimensions, so that the flange of the *L* wire will fit the groove only upon being driven into it. The horizontal leg of the *L* wire should extend toward, and be flush with, the edge of the cylinder.

INSERT L WIRE Drive the flange of the *L* wire into the grooves, so that the wire forms a band on the circumference of the cylinder at each side of the cylinder. Leave a gap $\frac{1}{8}$ in. in length at the point where the ends of the *L* wire forming each band come together. Solder the ends of the *L* wire together, filling this $\frac{1}{8}$-in. gap with solder.

A slightly different technique must be followed in cutting the *L*-wire grooves on the doffer. Because the edge of the doffer shell is equipped with a very narrow head (rim), whereas the cylinder shell is not, Fig. 3, it is necessary to cut the *L*-wire grooves on the doffer $\frac{7}{16}$ in. from the inside of the doffer heads.

A bad practice is usually followed at this point also; namely, cutting off the doffer heads. There is no advantage gained in removing the heads; and if they are allowed to remain on the doffer and the *L* wire is placed flush against them, they provide additional support for the *L* wire.

After the bands of *L* wire have been driven into the grooves cut in the doffer, place a roll of the base wire, Fig. 1, *b*, on a reel from which it can be unwound. Set up the clothing jack and insert the end of the base wire. On one side of the end of the base wire, file a 2-in. taper in the thickness of the wire. Tin this taper for soldering.

On the right-hand side of the cylinder (facing the cylinder from the front

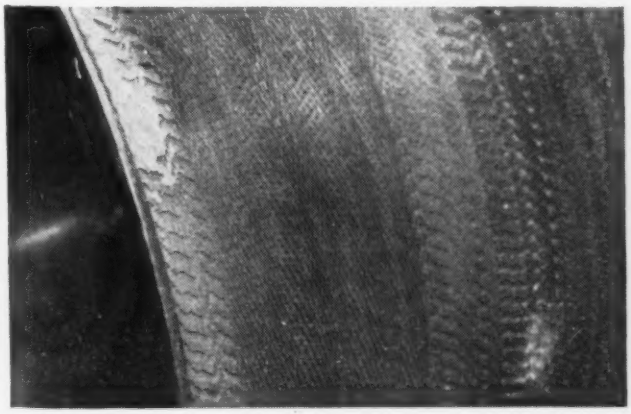


Fig. 4. The two light spots on this doffer are caused by solder. The solder spot to the left is the point at which winding the base wire was begun; the one to the right is where a union of two ends of the wire was made. For starting the wire on the doffer, a 2-in. taper is made in the thickness of the wire; and this taper is soldered to the L wire against the doffer head. A 1/4-in. taper is made in each end of the wire where a union is made. There are small unclothed areas at the edges of the cylinder.

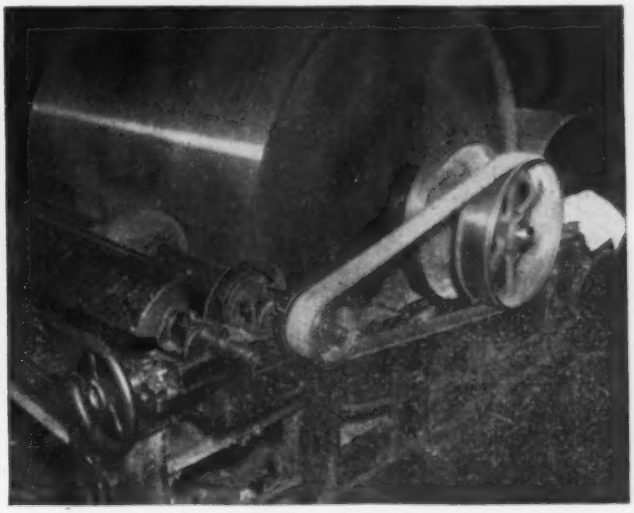


Fig. 5. The first grinding of the cylinder or doffer should be after the base wire has been installed. The surface grinding roll, above, is used for this purpose. Grinding time for the cylinder base wire is about 8 hr.; for the doffer, about 4 hr.

of the card), tin a place 2 in. long on the inside of the band of *L* wire. This 2-in. length should begin 4 in. back of the soldered joint in the *L* wire, so that tension applied to the wire while it is being wound will be transferred to the *L*-wire joint.

SWEAT WIRES TOGETHER. Place the tinned end of the base wire against the tinned place on the *L* wire, and heat the outside of the *L* wire to sweat the two wires together. File off any excessive thickness of solder.

This joint will be thin and strong, and it will cause no significant deflection of the base wire when it is wound past this point on the first round of winding.

Wind the base wire of the cylinder under a tension of 500 to 600 lb. Keep each successive round of wire pressed against the one before it with enough lateral pressure (approximately 75 lb.) to make the wire stand up. When the wire has been wound to the left-hand side of the cylinder and the last possible round of wire has been driven down alongside the band of *L* wire, solder the base wire to the *L* wire.

If the first roll of wire is used up and a second roll must be mounted in the clothing machine, solder the last round of wire to several previous rounds and remove the end from the machine. Mount the new roll, and join the ends of wire by tapering the thickness of each end $\frac{1}{4}$ in. and brazing the tapers together. File the outsides of the joint to avoid excessive thickness.

After the winding of the base wire has been completed, all joints made in the wires are further strengthened by soldering an area approximately 1 in. wide and 2 in. long. Fig. 4.

The doffer is covered with base wire in a manner similar to that outlined for covering the cylinder.

The cylinder and doffer are ground with a surface grinding roll, Fig. 5, until the surfaces are smooth. Usually, a grinding time of about 8 hr. is required for the cylinder and 4 hr. for the doffer.

STARTING THE CARDING WIRE. The method of starting the carding wire on the cylinder and doffer is one of the most important points in clothing the card. The practice generally followed is to cut a groove for the flat wire, Fig. 1, c, in the *L*-wire band. This location of the flat wire in the *L* wire and the fact that the groove for the *L* wire is usually cut more than $\frac{3}{8}$ in. from the edge of the cylinder or doffer, account for the unclothed areas at the ends of the cylinder and doffer.

Another practice is to cut the groove $\frac{1}{32}$ in. wide and $\frac{3}{32}$ in. deep along the center of the *L*-wire band. Begin at a point on the perimeter of the cylinder opposite the joint in the *L*-wire, and drive flat wire c into the $\frac{1}{32}$x$\frac{3}{32}$-in. groove. One-half the height of the wire should stick out of the *L* wire. Leave a $\frac{1}{8}$-in. gap between the ends of the band of flat wire, and solder the ends together, filling the gap with solder. Place a band of flat wire in the *L* wire at the other end of the cylinder and both ends of the doffer.

The procedure for winding on the cylinder wire, Fig. 1, d, is practically the same as that for winding on the base wire. The only variations are: (1) the 2-in. taper filed on the end of the wire is soldered to the flat wire instead of the *L* wire, and (2) joints in the wire should be the length of three teeth of the wire.

When the last possible round of wire has been wound on the cylinder, solder the end of the wire in the following manner:

1. Over a length of 3 in., cut off the teeth on the first three strands of wire next to the flat wire;
2. Fill this gap with solder, so that the solder is approximately level with the clothing teeth;
3. File down the joint until it is smooth on the top and sides.

In like manner, solder two other places equal distances apart on the circumference of the cylinder, so that the joint made at the end of the wire will have less strain on it. Also solder three places on the right-hand side of the cylinder (where winding the wire was begun).

Follow the same procedure for winding on the doffer wire, Fig. 1, e. Only two places at each end of the doffer winding need be soldered.

[See Fig. 6 for a view of a card at this point of metallic-clothing installation.]

Replace the doffer shrouds, cylinder arches, make-up pieces, grinding stands, and binder pulleys. Grind the cylinder and doffer until the wire is even. This grinding usually requires 1 to 2 hr.

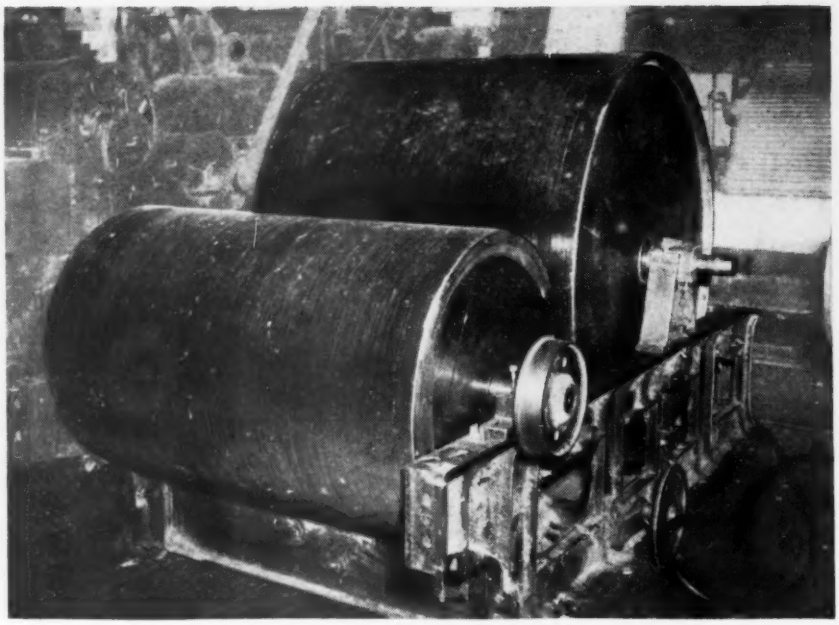


Fig. 6. Carding wire (cylinder, 100 points per sq. in.; doffer, 110 points per sq. in.) is wound on with sufficient tension to hold the wire tight and with 75 lb. lateral pressure to make the wire stand up. This card is now ready for the doffer shrouds, cylinder arches, etc., to be replaced. Grinding the carding wire is done with traverse grinding rolls. One to two hours is usually required for grinding the wire down level.

Data on Installing Metallic Card Clothing

Base wire	
Wt. per cylinder (lb.)	275
Wt. per doffer (lb.)	156
Winding tension (lb.)	500 to 600
Lateral tension (lb.)	75
Grinding time per cylinder (hr.)	8
Grinding time per doffer (hr.)	4
Carding wire	
Points per sq. in. (cylinder)	100
Points per sq. in. (doffer)	110
Wt. per cylinder (lb.)	140
Wt. per doffer (lb.)	93
Winding tension (lb.)	Sufficient to keep the wire taut
Lateral tension (lb.)	75
Grinding time per cylinder (hr.)	1 to 2
Grinding time per doffer (hr.)	1 to 2

KNIT-CLOTH DYEHOUSE
Thrives on Diversity

HIGHLIGHTS: *Dyebeck, kier, quetsch, squeeze rolls, extractor, calender, loop-dryer, and other machines needed to handle cotton and wool circular-knit fabrics—Steam, water-supply, and waste-disposal systems are important factors in selecting site for finishing plant—All labor-saving devices should be given consideration.*

By IRVING TEPLITZ, *Richard Finishing Co., Jermyn, Pa.*

CIRCULAR-KNIT-GOODS finishers of necessity have a variety of equipment and machines. Kiers are to be preferred over dyebecks where the poundage of cotton to be bleached is large. Dyebecks are necessary for dyeing pastels and colors. Modern practice is to give cotton cloth a bottom bleach before dyeing pastels, but this bottom bleach may also be done in the dyebeck.

Fulling machines are necessary for work on woolen or worsted jersey. Excess water is removed from the cloth by means of centrifugal extractors or squeeze rolls. Squeeze rolls are to be recommended wherever the goods are to be given weighting and non-curl treatment in the quetsch. The non-curl solution is necessary for circular knit goods of cotton-content to prevent the edges of the cloth from curling when on the cutter's table. Weighting is used to compensate for loss in weight of goods due to scouring and bleaching.

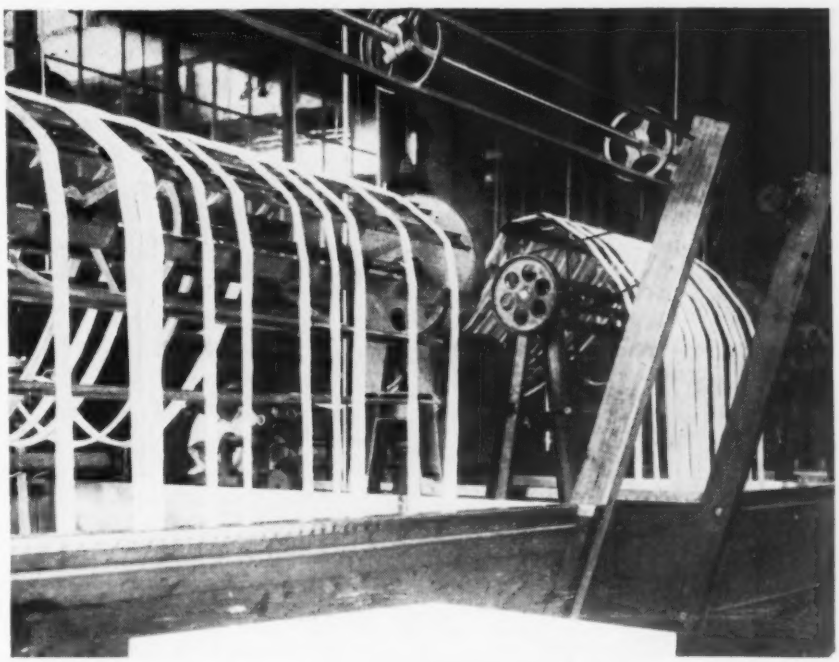
The modern method of drying circular knit goods is by the loop-dryer. The loop-dryer is equipped with a cloth conveyor which moves the cloth in a relaxed condition through a housing containing large fans blowing air on the goods at 250° F. and above. This expensive but extremely useful piece of equipment is engineered to dry goods rapidly, economically, and safely. A modern loop-dryer with six fans can dry 1,250 lb. of cotton cloth an hour, or 10,000 lb. in a single eight-hour shift.

The circular-knit-goods calender steams and rolls up the goods on a paper tube; while the spreader, placed in front of the cylinders of the calender, gives the cloth the desired width.

COST OF DYEHOUSE. Like many other things, the cost of a circular-knit-goods dyehouse is an elastic figure, beginning at $75,000. Certain patented and exclusive equipment for circular-knit-goods work is available on a rental basis after a fee has been paid for installation and service. This equipment consolidates the extraction of water, impregnation of weighting and non-curl solution, drying, and calendering in one continuous synchronized operation. The usual calendering operation may cause a bow in striped goods, and special equipment is used to keep the stripes in jersey cloth in a perfectly rectilinear position.

Generally speaking, underwear plants have their own bleaching facilities, whereas knitters specializing in cloth for the polo-shirt, infants'-wear, and bathing-suit-lining trades have the dyeing and finishing done by commis-

(Continued on page 202)



After treatment in rope form as above, knitted piece goods must go through a spreader before entering the calender.

Yarn with a Happy Ending!

SUN TEXTILE LUBRICANT...

Cuts Dripping, Splashing and Spotting in Woolen Mill

Splashing and dripping of oil from gears, cams, bearings, and chains of different machines were reducing quality and increasing costs in a big Eastern worsted mill.

Spots in cloth could not be entirely removed by mechanical washers or by hand spotting, and on the spotted areas of cloth the dye would not take.

A Sun Engineer recommended that the mill change to a Sun lubricant specially processed for textile machines — one that adheres to metal parts. The mill changed over and now reports that dripping and splashing have been cut to the minimum. Washing and dyeing problems have disappeared.

The results in this mill are typical of those attained in many plants where Sun "Job Proved" lubricants are used. The Sun Engineer may be able to help you achieve similar lubricating economies. Call your nearest Sun office today or write Dept. T3.

SUN OIL COMPANY · ***Philadelphia 3, Pa.***

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INDUSTRIAL PRODUCTS

Improvements and New Buildings Highlight TEXTILE PROJECTS

HIGHLIGHTS: *Drayton Mills air-conditions weave room and alters building—Four air-conditioning units on roof supply eight zones in weave room—New Mexican mills to contain latest, most modern machinery and equipment.*

Looking down a main aisle in the weave room at Drayton Mills, Spartanburg, S. C., one of the main air-conditioning ducts is seen directly overhead; note also piping for supplementary atomizer heads and the high-level illumination provided by the fluorescent lighting.

TWO PROJECTS which are interesting highlights of the textile industry's 1946 program of expansion and improvement have been reported by Lockwood Greene Engineers, Inc.

At Drayton Mills, Spartanburg, S. C., a new air-conditioning system was installed in the weave room as part of a betterment program; and, at the same time, the building was converted from sawtooth construction with natural light and ventilation to a totally inclosed, insulated, flat-roof building with new fluorescent lighting. All work was carried out under the supervision of Lockwood Greene.

The Drayton weave room is approximately 540x189 ft. in size and contains about 1,300 looms producing a wide variety of cotton, rayon, and mixed-fiber dress fabrics. The room humidity is controlled in eight different zones, with relative humidities ranging from 60 to 80%.

FOUR CENTRAL STATIONS. A Buensod-Stacey low-level-diffusion system was installed which employs four central stations in two fan rooms on the roof; the system is so arranged that each station serves two of the eight weave-room zones. Each zone has its own humidity control, supplemented by volume dampers and booster heaters. Two of the stations have capacities of 70,000 cfm. each, and the other two will handle 100,000 cfm. each. The system employs evaporative cooling, but is arranged for application of refrigerated water whenever desired in the future. Refrigeration load would be approximately 500 tons.

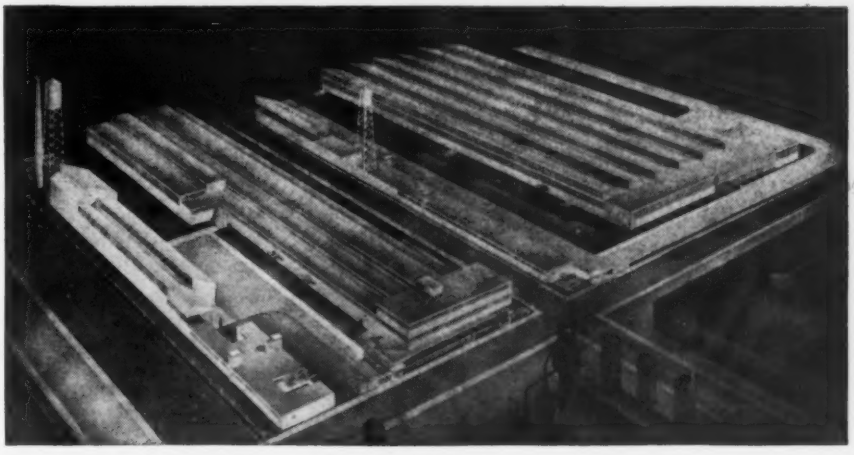
Supplementary spray heads, made by American Moistening Co., are used throughout.

This type of control, by zones through separate controls, is reported to have proved satisfactory in spite of the lack of partitions, or even wide aisles, between zones. There is some shading off between zones, as is to be expected.

The air-conditioning installation and building changes are reported to have resulted in marked improvement in weave-room efficiency and decrease in the percentage of seconds.

Near Mexico City, at Atzcapozalco, two new textile plants of modern design being built by two affiliated com-

(Continued on page 220)



Near Mexico City, two textile plants being built by two affiliated companies, consist of a cotton-gray-goods mill (right) and a finishing plant (left), as shown in the architect's drawing.

Your Profit may depend on where you place this machine

Take a look at your wet finishing equipment—do you have all the machines you need and are they in the correct position to meet today's production demands?

In many mills production is slow, costs are high because of wasted labor resulting from out-of-date production lines. Butterworth engineers have spent years studying this problem of the Textile Industry. As a result, improvements have been made in production facilities, machines have been designed and redesigned to minimize or eliminate production shortcomings.

Butterworth makes all the machines required for fast, modern production — in bleaching, boiling-out, drying, calendering, or dyeing. Whether your mill requires a single machine or a complete range, you can depend on the unique Butterworth experience of 127 years of designing and building equipment for the wet end of Textile Finishing.

Butterworth engineers are ready to help you place new machines or rearrange your present ones to increase production, eliminate wasted labor, and make the most effective use of available floor space. Write us today.

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Air Bells Can Be Eliminated in Wool RAW-STOCK DYEING

HIGHLIGHTS: *Bells occur most frequently along walls of dye vessel —Lofty, springy wools are most likely to cause bubbles — Proper wetting out is of great help—Higher starting temperatures of dye baths, when dyes can stand it, is beneficial.*

By HOLGER THUEMMEL

IN DYEING WOOL RAW STOCK, round-, pear-, or bell-shaped undyed particles appear at times separate and at other times in clusters, most frequently along the walls of the various types of pressure-dyeing machines. In medium and dark shades, they present a serious source of trouble. In lighter shades, subsequent good carding can remedy the defects caused by air bells; and, sometimes, desirable results have been obtained despite the bells. Even in the darker colors, good carding has been known to be very helpful in removing the bad effects of air bells, provided that the percentage of bells was not too great.

The sources of air-bell difficulties are many. Observation and experience of this writer leads to the conclusions outlined below.

WOOL CHARACTER A FACTOR. Lofty, springy wools of the 64/70s type, such as Australian, Texas, AA pulled, and 64/70s noils, are the greatest offenders, particularly if they are well dried and packed firmly into the various types of machines. Lessening of the load in the machine is helpful but reduces production. As proof for the assumption that character of stock is a contributing factor, one may mention the absence of this feature in stock that has been reworked and has lost a great deal of its elasticity. Also, the coarser wools do not have the same ability to imprison air within themselves.

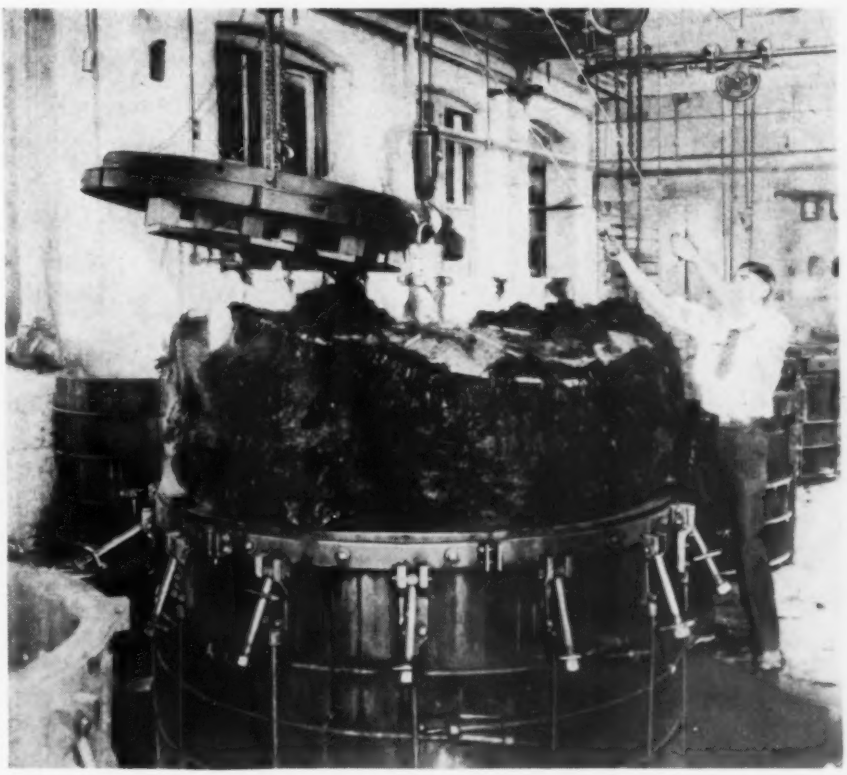
In chrome dyeing, the metachrome method is very often preferred, as it is a great time saver; however, in this procedure, air bells do frequently occur. An additional wetting agent, applied after wetting out, has not been found to be of great help, as the packed wool retains the imprisoned air with great tenacity, even to such an extent that the same lot shows very little improvement after redyeing.

A proper wetting-out is of great help, though it does take a little more time. When wetting out proceeds as it should, one can observe a continuous stream of air bubbles rising. After a while, this stream gradually diminishes, particularly when the liquor is not circulated much and is at times completely stopped.

TAKE WOOL DIRECT FROM SCOUR. On large dye lots, it would be feasible to use the wool directly as it comes from the rinsing bowl of the scouring machine. The last squeeze roll acts as an evener in wetting out the wool, and the use of stock taken directly from this stage gives good results in vats. After some experimentation, the percentage of water content in the wool from the scourer can be maintained accurately enough to enable the dyer to proportion his various formulas. This may not be advisable, however, on small lots or on batches to be used for shading, as the correctness of the weight and any other variables are of great importance.

Further proof that pressure, or ex-

(Continued on page 197)



Undyed particles of wool raw stock, when present, are generally seen along the walls of the dyeing machine.

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Survey Gives Clues to Best WORKING HOURS for Women

HIGHLIGHTS: *Conditions at home largely govern attendance records of women—During war, efficiency actually rose with longer hours in some cases—Most women prefer five-day week.*

Period studied, scheduled hours, and occupation	Total number of women studied	Women losing time		Average number of absences	Average hours per absence	Hours lost by total number of women per 100 possible man-hours of work
		Number	Percent			
1st period (8–40 hours)	222	141	63.5	2.3	13.9	8.5
2nd period (9–45; 9½–46 hours)	180	151	83.9	4.0	12.8	16.1
Loopers						
1st period (8–40 hours)	84	47	56.0	2.1	15.1	7.6
2nd period (9–45 hours)	66	53	80.3	4.3	8.6	11.4
Seamers:						
1st period (8–40 hours)	138	94	68.1	2.4	13.3	9.1
2nd period (9½–46 hours)	114	98	86.0	3.9	15.3	18.7

Comparative records of groups of women working 8 hr. per day, 40 hr. per week, with other groups working 9 hr. per day, 45 hr. per week, and 9½ hr. per day, 46 hr. per week, show better attendance of those working shorter hours.

THE OPTIMUM WORKING SCHEDULE for women workers in textile plants will depend on their efficiency, their attendance records, and conditions at home. These are the conclusions to be drawn from a survey made by the Women's Bureau of the Department of Labor on the effect on women of various working hours during the war years. While work under the artificial stimulation of war may not be completely comparable to work under normal, peacetime conditions, the bureau's findings are of definite interest to those who wish to achieve an efficiently run plant.

Contrary to what might have been expected, the bureau found that an increase from an 8-hr. day to a 9½-hr. day did not lower the efficiency of the women workers interviewed. In a full-fashioned-hosiery producing plant covered by the department survey, loopers averaged practically the same hourly earnings, 70¢, whether they worked only 38 hr. per week, or as many as 45 hr. The efficiency of experienced seamers actually increased slightly with the longer work schedule. Seamers with experience of a year or more managed to increase their earnings from 75.5¢ per hr. when working 38.5 hr. per week to 78.5¢ per hr. when working 42.5 hr. per week.

Without exception, all the women interviewed said they preferred the five-day week. Almost three-fourths preferred an 8-hr. day; in fact, these women were positive they could earn more money per hour during an 8-hr. day than they could during a 9- or 9½-hr. day. The rest of those interviewed said they would prefer a 6- to 7½-hr. day. None of the women desired a 9-hr. day. The 8-hr. day and 40-hr. week was a tradition with them.

Nevertheless, actual plant efficiency of the women questioned did not decrease with increased working hours. Attendance figures, however, showed a marked change. The bureau found that experienced loopers and seamers who worked the 5-day schedule of 8 hr., lost only 8.5 hr. per 100 possible man-hours of work. But under the 9- or 9½-hr. schedule, hours lost almost doubled; that is, 16.1 hr. were lost per 100 possible man-hours of work. Moreover, the number of women who lost no time whatever decreased from 38.5% in the 40-hr. schedule, to 17.4% in the 45- and 46-hr. week.

When women were interviewed in their homes about this lost time, they indicated full awareness that their absences had increased under the longer-hours schedule. About half the women gave as their reason tiredness and lack of time for relaxation. An equal number attributed their absences to colds, headaches, and other forms of illness. A few admitted they had taken time off to catch up on housework or to attend to personal business.

When management advised loopers that they could work a maximum of 10½ hr. a day, 57 hr. a week, and suggested they choose any combination of daily hours most convenient to themselves, the response of experienced loopers was revealing. Out of a possible total of 1,440 man-days of work available to them, these women worked all but 23, and the days missed were chiefly Saturdays. When the women did work Saturdays, fewer than half worked less than 8 hr.

A breakdown of their daily work schedules disclosed that the largest proportion of women worked 9 hr. on Monday; more than half worked 10 or 10½ hr. on Tuesday, Wednesday, and Thursday; and 8½-, 9-, and 9½-hr. schedules prevailed on Friday. During the five weeks covered by the study, 25.3% of the man-days were 9-hr. days, 21.8% were 10½-hr. days, 17% were 10-hr. days, and 14.7% were 8-hr. days. Unquestionably, by permitting loopers to work any hours they chose, between 6:30 a.m. and 11:30 p.m., the plant did succeed in increasing the total hours worked.

The reaction of the women to those increased hours can be surmised from these typical comments: "The weekend is sacrificed to housework;" "My shopping problems are increased," "Home sewing and reading newspapers had to be given up because my eyes did not hold out;" "I seldom went out at night when I worked longer hours." Lack of recreation was also commented on by Southern women, but this was offset by the freedom to come to work as they pleased. They found another advantage in the commissary at the plant, which took care of their shopping problem.

In the Northern city studied by the bureau's survey, most of the women workers reached the factory by trolley; and the round trip required an hour's travel-time. In the Southern city, on the other hand, half the women interviewed were able to walk to work, the plant being within a 30-min. walk of their homes; the other half came by bus, and their round trip took from 1 to 2½ hr. each day.

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RAYCO COTTON & SYNTHETIC FIBERS

Efficient Laboratory a "Must" For MODERN FINISHERS

HIGHLIGHTS: *Plant made much of its hard-to-get laboratory equipment—Adequate storage space promotes efficient work — Separate, departmentally operated control laboratories relieve main lab of bulk of routine work — Adequate, well-trained staff necessary for smooth-functioning laboratory.*

COMPLETED within the last year, one of the newest laboratories in a finishing plant is in operation at Union Bleachery, Greenville, S. C. This laboratory was started during the last months of the war; since the usual equipment was practically impossible to secure, much of it was devised and built by the bleachery itself. For example, all the laboratory benches were made in the plant's own shop, being well constructed of wood and covered with plastic tops. Other items were also built as required, when ready-made items were found to be unobtainable.

The laboratory occupies well over 3,000 sq. ft. of floor space and is divided into three separate rooms. One room is a spacious storage area for glassware, chemicals, occassionally used apparatus, etc., and is a big aid in promoting tidiness and efficiency as it avoids the congestion found in the plant's old laboratory where such items had to be kept in operating areas. Another room, adjacent to the storage room, is fitted out for physical testing and has over 400 sq. ft. of floor space.

In the main laboratory, approximately 2,500 sq. ft. in size, are carried on the bulk of the multitudinous chemical activities involved in the operation of the plant. Problems tackled here may range from those of pure research through applied research to simple control. However, the load of carrying the bulk of process-control problems is eased for the main laboratory by five control laboratories located in various departments. These five laboratories are operated by the departments themselves and require only general checking by the main laboratory.

While physical equipment is important, more important are the chemists who work with it. The main laboratory is staffed by eight chemists and technicians. Several of these are specialists in various phases of plant operation and maintenance, while others devote a large part of their time to new processes, materials, and developments. This provides a well-rounded organization whose members are familiar with and capable of coping with the various details and problems that are bound to arise daily.

Fig. 1. Corner view of conditioning room, showing tensile-strength tester, cloth rack, and other apparatus. Behind the black curtains is a partitioned corner which contains ultra-violet lamp and cloth-examining equipment.

Fig. 2. Part of main laboratory. This shows office, library, and research and analytical section in background. In foreground is dyeing section, including pad and steam bath. Laboratory is located on upper floor of plant, with light on three sides.

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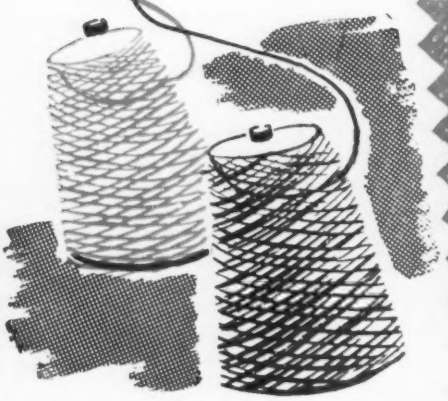

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Each of these operators in the hosiery-sewing room takes part in the maintenance program. Three times during each shift each operator oils her machine, and at the end of the shift she cleans it and again oils it so that it will be ready for the operator on the following shift.

Close attention is given to obtaining a good stitch in the sewing operation. Goods from the sewing room are inspected constantly, and improper stitching is reported at once. In this photograph, Ely A. Buchanan, who is responsible for the proper maintenance of sewing machines at Spalding Knitting Mills, is making adjustments to the stitching mechanism of a machine reported by the inspector as making a bad stitch.

Frequent Inspection Aids SEWING-MACHINE Upkeep

HIGHLIGHTS: *Responsibility for maintenance of sewing machines is placed upon one man at Spalding Knitting Mills, Griffin, Ga.—Operators oil machines—Maintenance man inspects all moving parts every four weeks.*

By E. DALTON WHITE

SEWING-MACHINE OPERATION at Spalding Knitting Mills, Griffin, Ga., has been materially aided by a system of daily inspection, periodic adjustment, and proper lubrication of machine parts. Responsibility for the upkeep and operation of all sewing machines used in the mill has been placed upon one man, and this maintenance system has resulted in reduction of maintenance cost and machine down-time.

The responsibility for the mechanical fitness of the machines rests with Ely A. Buchanan, who has had 19 years of experience. He feels that best results are obtained when operators are not allowed to make any mechanical repairs or adjustments. However, under the procedure as worked out, the operator oils her machine three times during the shift. At the end of the shift, the operator dusts the machine and cleans all lint from the main cams by the use of a salvaged knitting needle. The machine is lubricated and made ready for the next shift.

Every four weeks, each machine is thoroughly checked; and adjustments, where necessary, are made to all moving parts. Knives are ground; the looper, looper carrier, and needle carrier are checked for proper clearance. Tension nuts are checked, as well as shaft and all other bearings. Lint is blown off and all parts are properly lubricated. It is recommended that each machine be given a major overhaul every two years and all parts showing excessive wear be replaced.

It has been found that one mechanic, or fixer, can maintain about 60 machines. This number allows time for daily routine checks and maintenance, as well as for monthly adjustments and major overhauls. It also has been found that where the fixer makes needle replacements, considerable savings have been effected and better sewing obtained.

INSPECTION. Periodic daily inspection is made of goods from the sewing room to detect uneven stitching or trimming which may be the result of faulty machine operations. Constant preventive maintenance has reduced the number of machine breakdowns and part replacements. Inspection and proper adjustment of needle and looper carriers prevent needle breakage and eye wear by yarn. Monthly

(*Continued on page* 200)

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HIGHLIGHTS: *Compilation published by Office of Quartermaster General shows how Germans handled synthetics on cotton and worsted systems—In worsted spinning, sacrifice in carding production was found to pay off in spinning—Care in early cotton-type processes also stressed—Artificial light engineered to daylight.*

Abstracts from the foreword to the collection of Denkendorf reports.

"Shortly after arrival in Germany of the first group of textile investigators of the Office of The Quartermaster General, a report was received of a highly significant research organization which the Germans had established in 1938 in the little town of Denkendorf in South Germany . . . Here was a completely equipped mill of about 7,000 spindles devoted wholly to research on the spinning of a single type of textile fiber.

"The research reports (Berichte) of this organization were carefully reviewed and were found to contain information on a large number of fields of very broad interest. Many of them dealt with aspects of staple fiber processing on which research had apparently not been conducted in this country.

"In view of the fact that the 'Berichte' had been made available to the German textile industry only on a confidential basis with a specific prohibition against making them available to others, it was not surprising that nothing previously had been known about these reports in this country. The collection of reports as presented here contain those published through 1944.

"It will be of interest to readers of this report to know that every practicable step has been taken to keep this organization together . . . It is planned to make available the future research reports of this organization to the American textile industry."

—S. J. KENNEDY, *Assistant Director, Textiles, Clothing, and Footwear*

CONFIDENTIAL technical reports from the German experimental textile plant at Denkendorf have been made public in Report No. 14 of the Textile Series of the Office of the Quartermaster General, Military Planning Division, Research & Development Branch, released by the Office of the Publication Board of the U. S. Dept. of Commerce.

The report is divided into three parts: (1) "Long staple-fiber processing on the worsted system," (2) "Processing on the cotton system," (3) "Scientific-technical investigations."

Information appearing in the report which will be of especial interest to U. S. mill men has been abstracted in the following by P. M. Thomas, associate editor of TEXTILE WORLD, and Francois E. Cleyn, consulting editor of TEXTILE WORLD and president of Spinners, Ltd.

WORSTED SPINNING. In Germany, wool was in short supply for many

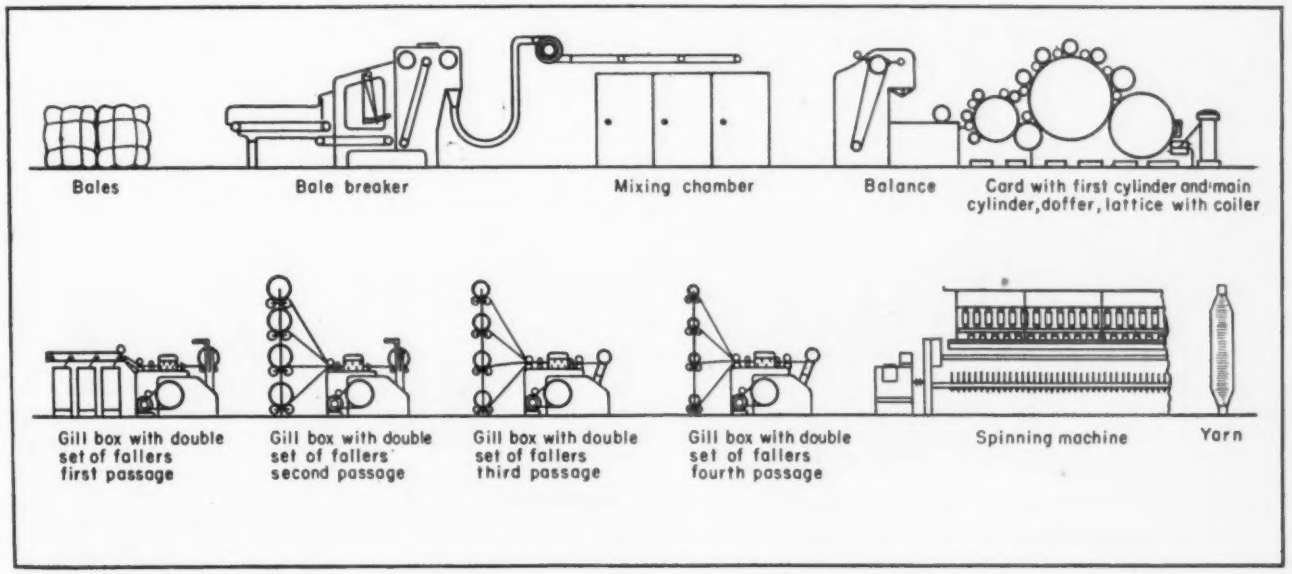
Bales
Bale breaker
Mixing chamber
Balance
Card with first cylinder and main cylinder, doffer, lattice with coiler
Gill box with double set of fallers first passage
Gill box with double set of fallers second passage
Gill box with double set of fallers third passage
Gill box with double set of fallers fourth passage
Spinning machine
Yarn

Fig. 1. Procedure recommended by the Denkendorf plant for the spinning of long-staple rayon fibers on worsted equipment. Drawing appears in Report No. 14 of the Quartermasters' Textile Series.

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PRODUCT *Chemical Formula; Molecular Weight*	HOOKER SPECIFICATIONS	SUGGESTED USES
Acetyl Chloride CH_3COCl; 78.5	Color . . . . . Clear, colorless to pale yellow Distillation Range . . . . . 95% of distillate, within 5° C including 51°C	Manufacture of chemical intermediates and dyes.
Antimony Trichloride, Anhydrous $SbCl_3$; 228.1	Antimony Trichloride . . . . . 99% Min. Iron and Arsenic . . . . . 1% Max. Lead 0%	Catalyst in organic synthesis; mordant in textile printing. Moisture and fireproofing textiles.
Benzal Chloride $C_6H_5CHCl_2$; 161.0	Clear, yellow liquid. Boiling range . . . . . 200 to 235° C Specific Gravity 15.5°/15.5°C . . . . . 1.279 ± .005	Dyestuff intermediate
Chlor Anisidine $NH_2C_6H_3ClOCH_3$; 157.5	Gray crystalline solid. Melting Point . . . . . 79°C Min. Diazo Test . . . . . Relatively clear.	Dye intermediate.
Metanitrobenzoyl Chloride $NO_2C_6H_4COCl$; 185.5	Yellow to brown liquid, partially crystallized Last crystal point . . . . . 28 to 31°C	Manufacture of dyes.
Monochlorbenzene C_6H_5Cl; 112.5	Clear, colorless liquid. Distillation Range . . . . . 131.3 to 132.3°C	Dyestuff intermediate, preparation of sulfur black, brown dyes.
Orthodichlorbenzene $C_6H_4Cl_2$; 147	Clear, colorless liquid. Freezing Point . . . . . -10 to -22°C Boiling Range 6° including . . . . . 179°C	Manufacture of pyrocatechin, dye intermediate, other synthetic organic chemicals. Degreasing wool.
Sodium Sulfhydrate NaSH; 56.1	NaSH..70 to 72% NaCl. . . . . 0.4 to 0.8% Fe. . . .5ppm Max. Na_2SO_3, $NaHCO_3$. . 0.04 to 0.4% Na_2S. . 0.25 to 2.5% Cu, Ni, Cr. Mn, Pb. . 1ppm Max. Water of crystallization. . . . . 28 to 26%	Desulfurizing rayon; calico printing; in sulfur dye baths.
Sodium Sulfide Na_2S; 78.1	Na_2S . . . . . 60 to 62% Fe . . . . . 8 ppm. Max. NaCl . . . . . 1.5% Max. Other Na Salts . . . . . 2.0% Max. Cu, Ni, Cr, Mn, Pb . . . . . 1 ppm. Max. Water of crystallization . . . . . 36.5 to 34.5%	Desulfurizing rayon; calico printing; in sulfur dye baths.

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years before World War II. On the other hand, Germany's worsted plants were highly developed, and the lack of raw materials made it necessary to find substitutes for the otherwise idle machinery. Synthetic fiber was the answer, and the experimental unit in Denkendorf developed a satisfactory process of spinning wool-type fiber on Continental-type worsted machinery. The process recommended by Denkendorf is the following:

a. Hopper feeder and mixing device.
b. Card with balance.
c. Gill box with double set of fallers.
d. Gill box with double set of fallers.
e. Gill box with double set of fallers.
f. Gill box with double set of fallers.
g. Long-draft spinning frame.

The experiments conducted at Denkendorf indicate that it is economical to sacrifice production on the carding process and keep fibers under perfect control. The increased cost per pound is compensated for by increased production on the spinning. The production on one card amounted to approximately 9½ kilos. per hour with a count of 0.11. Fine wire clothing is recommended.

In the drawing operation in Germany, double gill boxes, porcupine drawing frames, and hackle drawing frames are used. Extensive experiments have been conducted to find out which type of machinery was most suitable for the working of long staple. A number of lots were run through differently composed sets, using various drafts and finally interchanging slivers after various operations. In each case, the sliver was examined for evenness in count, damage to staple, and breakage during spinning.

It was found that excessive drafts in any of the drawing operations had an adverse effect on evenness, in addition to causing damage to staple and end-breakage during ring spinning.

The most uneven sliver was obtained wherever the porcupine drawing frame was used; and, therefore, the fine hackle drawing frame was recommended for the last operation.

On long-draft spinning, best results were obtained with a roving condenser. Interesting tests were made with plain and covered top feed rollers and acetate and viscose staple were used to test the effectiveness in each case.

It was found that the gripping capacity of the Mipolam (synthetic) covered top roller was superior to all others, and the use of this material was recommended. It must be noted that most of the material available in America was unobtainable in Germany when these tests were made.

Adapting a Cotton Picker to Short-Staple Synthetic Fibers

1. Reduce pressure of calender rolls to about 400 lb.
2. Increase draft between last two calender rolls to 1.08.
3. Make lap ¾ to 1 in. narrower than the working width of the card.
4. Taper lap pin over its length so that it is about ⅛ in. larger at the pulling end.
5. Polish lap pin lengthwise and rub it down with talcum.
6. The winding surface of the pin should never be touched by the operator's hand.
7. Raise the lap-rack heads so that they hold the winding surface of the pin out of contact with the lap rolls.
8. Place a guide plate on each side of the picker between the beater and the cage section to prevent accumulation of stock at the outside edges of the screen.
9. Loggerhead pressure will probably need to be increased to insure easy removal of lap pin and proper unrolling of lap.
10. Loggerhead pressure should be released slowly at doff time. (Up to 10 sec. should be taken for this operation.)
11. Install a backward-feed roll to return excess stock in the feed hopper of the Kirschner beater to the lattice apron of the second tandem blending feeder.
12. Feed 3 to 3½ oz. per min. for a 39-in. lap.
13. For the cone belt, use an endless double belt and keep it in good condition.
14. Provide the working side of the cone-belt shipper fork with a bushing mounted in ball bearings to reduce the effect of the constant friction on this side of the fork.
15. Use lap scales equipped with self-regulating compensation for changing humidity.
16. Set picker production at approximately 330 lb. per hr. for a 39-in. lap.

Fig. 2.

Tests made on drafting showed the advantage of the break draft, the need for roller settings slightly in excess of staple length, and the draft resistance created by twist.

Draft resistance was tested with a "Frenzel-Hahn" electrically operated testing machine. The touching finger of the measuring head compressed the fiber tape and a needle in the measuring head registered the draft resistance.

Many worsted mills installing long-draft spinning are considering the use of Continental drawing and long-draft roving for yarn preparation. In the light of this, the report from Denkendorf should prove very valuable from many angles.

COTTON SYSTEM. Three blending feeders and one three-arm, unenclosed Kirschner beater are recommended in the Denkendorf reports, for opening and picking short-staple (up to 2½-in.) synthetic fibers. The first blending feeder delivers the stock to a heated storage chamber. In order to allow the fibers to dry uniformly for best open-

Card Settings for Synthetic Fibers

Setting Points	Fine Denier Short Staple (in.)	Coarse Denier Long Staple (in.)
Licker-In to cylinder	0.007	0.007
Back flats	0.012	0.015
Front flats	0.009 or 0.010	0.013
Doffer to cylinder	0.005 or 0.007	0.005 or 0.007
Doffer comb	0.012	0.012
Screen to cylinder	0.039	0.039
Back plate to cylinder (top)	0.012	0.020
Front plate to cylinder	Set to prevent strips	

Fig. 3.

BRINGING PROBLEMS TO LIGHT

The eyes of Corn Products technicians, at our textile laboratory in Greenville, S. C., see many textile problems. Their experience and knowledge, backed by complete facilities, answer these problems to the profitable satisfaction of many textile manufacturers.

CORN PRODUCTS SALES COMPANY

Greenville, S. C. • Greensboro, N. C.
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Atlanta, Ga.

ing and picking conditions, they should be kept in this mixing chamber for at least 24 hr.

Oiling the fibers is not recommended as a general practice; but if oiling is done, it should be accomplished at the first blending feeder prior to the 24-hr. adjustment of humidity.

From the mixing chamber, the stock is processed through two blending feeders (one after the other) and the Kirschner beater. These three machines are arranged in tandem, so that the stock can be processed continuously.

Doffer rolls used in connection with the lattice aprons in the feeders should be set as close as possible to the aprons, but the pins on the rolls should not be allowed to project into the pins on the aprons. These close settings aid in obtaining more careful and complete openings of the stock but do not cause tearing of the stock and consequent damage to the fibers.

The doffer rolls and aprons should be run at a higher rate of speed than is generally used for cotton opening. Good results have been obtained at a doffer-roll surface speed of about 470 yd. per min.

Special care should be given the Kirschner beater to avoid damaging the fibers and to guarantee proper opening. The following five points should be watched:

1. The stock coming from the blending feeders should be opened as thoroughly as possible;

2. The setting of the feed roll to the path of the beater should exceed the length of staple, so that the fibers are not carded out by the beater pins while still being gripped by the feed roll;

3. The beater pins should be arranged in such a manner that they grip the stock gradually (that is, the lateral rows of pins should increase in height toward the back of the beater lag);

4. The surface speed of the beater should not exceed 1,100 yd. per min.; and

5. The three arms supporting the three beater lags should be unenclosed, since an open construction at these points reduces the tendency to suck fibers back into the beater track and away from the cage section.

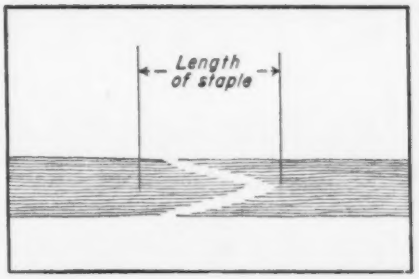


Fig. 4. Piecing up slivers of synthetic fibers must be done with special care, since these fibers do not possess the adhesive strength of cotton. The piece-up must give a thorough intermeshing of the fibers. A wedge-shaped piece-up, shown here, is recommended. The length of the wedge should correspond with the length of the staple used.

Generally, card clothing with a knee in the wire and a coarse wire point seems to be the most suitable type of clothing for carding short-staple synthetic fibers. Tests have shown that sufficient opening of the fibers and less filling of the clothing will occur if wire of 100 to 110 points per sq. in. is used for 1.5-den. fibers and 90 to 100 points for 2- to 3-den. fibers.

LIGHT CARDING. Carding should be less intense for synthetic fibers than for cotton. Card production should not exceed about 10 lb. per hr., with a cylinder surface speed of about 623 yd. per min.

To reduce the carding action further, the clothing should be removed on every second, third, or fourth flat, depending upon the staple length of the fiber. If the flat clothing is still relatively new, it is advisable to refill the space on the blank flats with dry, polished wooden strips to prevent air eddies. Flat speed should be 2 to 2½ in. per min.

The licker-in should be clothed with wire in which the teeth are inclined backward about 3 to 6° to avoid clogging with fibers. More even feeding of the licker-in and more even unrolling of the lap will be obtained if a draft of 1.05 is inserted between the lap roll and feed roll. It also helps to allow the lap to remain rolled at least 24 hr. between the time it is doffed at the picker and the time it is laid in the card.

Better control and more even feed of the fibers can be obtained at the licker-in also by extending the length of the feed plate as far as possible (at least to double its present length). It is advisable to have a means for adjusting the bottom of this extension, so that it can be set closer to the licker-in than the top of the standard plate is set. The effect of such a feed plate is to feed the stock gradually to the licker-in. Licker-in surface speed should be approximately 32 or 33 yd. per min.

A solid licker-in screen is satisfactory, providing an open space of about 2 to 2½ in. is left between the lower end of the feed plate and the screen (approximately at the location of the mote knives on a cotton card). This open space permits heavy foreign matter, matted fibers, and fly to escape the licker-in. The screen should be set very close to the licker-in.

The standard cylinder screen, rib or perforated, on a cotton card is preferable to a solid screen, since a solid screen does not permit sufficient ventilation. The screen should be set as close as possible to reduce air draft and to facilitate the passage of accumulated fibers.

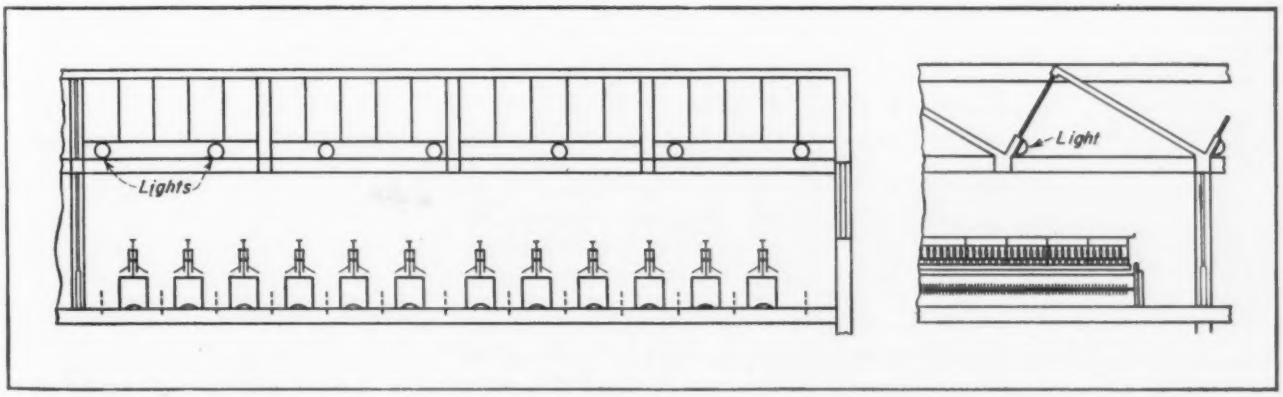
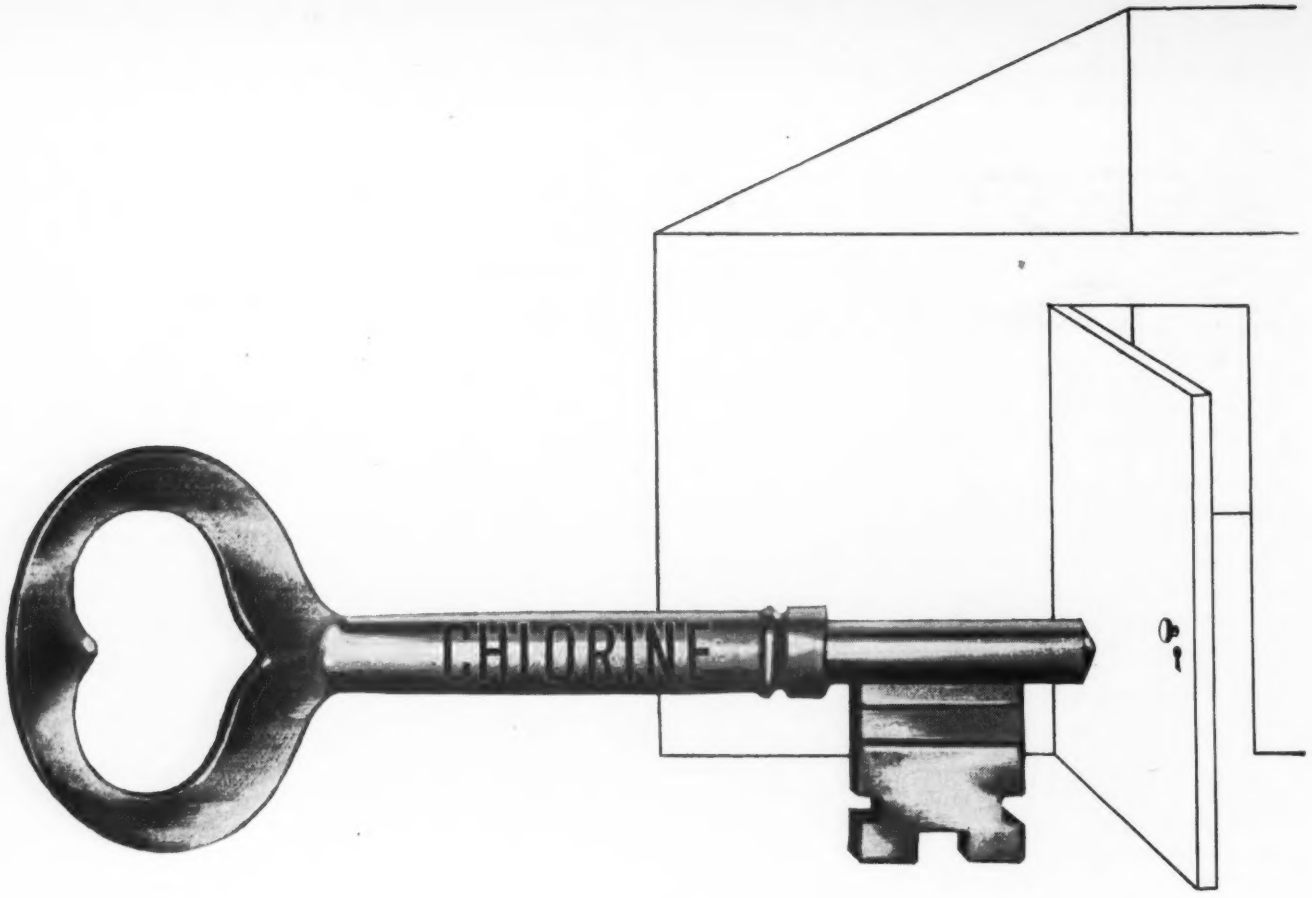


Fig. 5. Proper lighting for textile plants was also studied at Denkendorf with the result that the system sketched above was recommended. Lights were a mixture of mercury vapor and incandescent which, in color value, closely approximated daylight.



opening new doors

Research is finding Chlorine a useful key to the synthesis of other chemicals, especially organic materials. Wider and wider becomes the range of the services that Chlorine renders to the development of our civilization. It is an important agent in the manufacture of the newer insecticides, bactericides and weed-killers—and it's finding new uses in the fields of solvents, protective finishes, synthetic detergents and plastics. Chlorine continues to be important for sterilizing food equipment . . . bleaching pulp, textiles and other products.

Wyandotte Chemicals Corporation—one of the world's great producers of Chlorine—is alert to the promise of this chemical. So users of Chlorine can continue to look to Wyandotte for expert, up-to-the-minute service. A request for advice about the adaptability of Wyandotte Chlorine to *your* purposes will receive careful attention.

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RESIST PRINTING Demands Close Attention to Details

HIGHLIGHTS: *White or colored effects on colored ground may be produced by resist printing plus dyeing or cover-printing—Cover-printing is economical and variety of effects is possible—Penetration and flow important in a resist paste—Both physical and chemical protection are given the areas to be resisted—Cover print may have to be applied to both sides of cloth unless fabric is very sheer.*

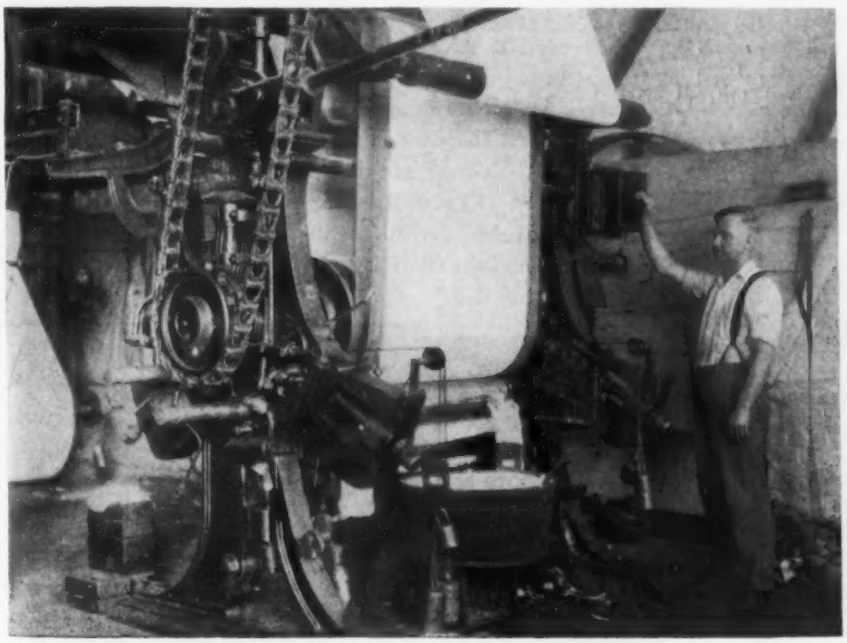
By T. N. PATRICK

RESIST PRINTING has for its object the production of either white or colored effects on a colored ground. The ground may be dyed a solid shade or it may be produced by means of a cover print.

Cover prints are applied by finely engraved copper rollers which convey a design consisting of regular close repeats of very tiny motifs, such as groups of pin-point dots, lines, stipples, etc. A wide variety of effects can be obtained in this way; and for white resists or reserves in larger motifs, such as dogs, human figures, etc., especially effective prints can be made. These patterns may have a vogue for dresses, neck-wear, handkerchiefs, etc.

It may be urged that the same result can be brought about by engraving the cover roller with the white areas "saved" or omitted in the engraving. However, the expense of engraving an additional stippled roller for each white motif would be very high. By applying a white or a colored resist, many different motifs can be used under the printing from one cover roller. In short, rollers with cover effects engraved all over their surface have a much wider field of application and use than if they were to be limited by the nature of their engraving to the production of only one particular white effect.

Vat colors are used for this type of production, not only because of their fastness but also because of the wide range of shades and the comparative ease with which they may be resisted.



Both mechanical and chemical properties in a resist paste act to inhibit fixation of the ground color.

NATURE OF RESISTS. The resist paste is printed, and if possible dried, before the application of the cover-print. The object is to allow the ingredients of the resist-print paste to have their full effect in preventing the fixation of the vat dyestuff in the cover-print paste.

Resist-print pastes are of two main types: (1) mechanical and (2) chemical. Both properties are present in varying proportions in almost every type of white resist-print paste. Mechanically, the paste is designed to hinder or prevent fixation of the cover-print dyestuff by filling the cloth in the areas to be resisted, with insoluble matter like china clay, zinc oxide, etc. Chemically, the resist aims at the use of thickened chemicals which have an opposite chemical reaction to that required for the fixation of the vat dyes, thus inhibiting their fixation. An example of the working of both effects by one chemical is in the use of alkali binding agents, like zinc sulphate. This, or a similar type chemical, has the effect of combining with the alkali of the print paste to form hydroxides. These latter bodies, being precipitated in the printed areas, form insoluble layers which are difficult of penetration by the print paste.

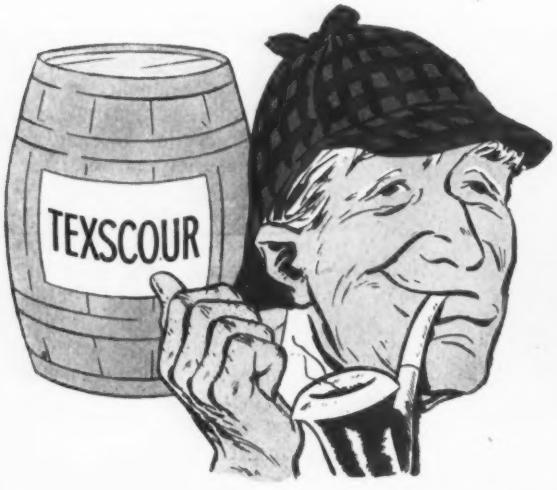
(*Continued on page* 188)

mused the Soap Sleuth, puffing on his meerschaum. "I was working on a new soap in my 31st Street laboratory, when suddenly I heard . . .

". . . a violent rapping on my door! A mill manager hurried into my office, moaning about strange blotches, streaks and stains! I rushed over to search for clues . . .

"I had never seen a more modern mill. The sequence of operations was about perfect. But one look through my trusty glass showed the trouble. 'Sir', I said, 'You need *Armour's Texscour*, the low-titer, red oil base soap!'

"You see, TEXSCOUR, the 8-12° titer flake soap, was the answer in this case. TEXSCOUR really penetrates . . . assures complete removal of oils, dirt, and waxes from all textile fibers! That mill manager now gets his scouring jobs done right. Re-runs and do-overs are a thing of the past! Incidentally, TEXSCOUR is but one of a number of soaps made by Armour for the textile industry. I'm always glad to recommend the soap best suited to the specialized needs of any textile mill."

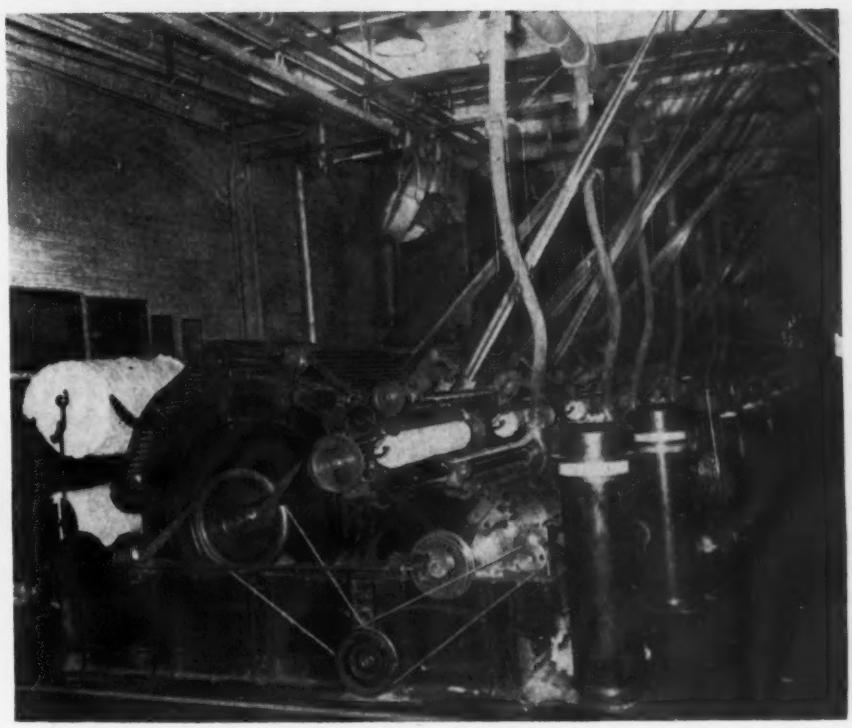


Armour INDUSTRIAL Soap

Armour and Company, 1355 W. 31st., Chicago 9, Ill.

Cotton Mills Analyze CARD-STRIPPING Methods

HIGHLIGHTS: *Southern mill reports that savings from continuous strippers repaid installation costs in 13 months—Recovery of spinnable fiber ranged from 1 to 2%—Another mill reports that vacuum stripping system saved one-half of stripper operators, facilitated waste-disposal and cleaning.*

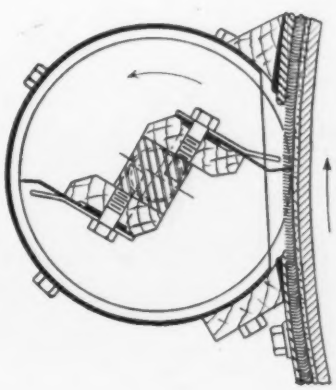


Vacuum strippers require one operator; and, according to the report of one southern mill, four cards are stripped at one time. Pipes may also be installed in other departments of the mill for waste disposal or cleaning.

SAVINGS from the installation of continuous strippers on cotton cards repaid the installation costs in 13 months in one large southern cotton mill. Recovery of spinnable fiber ranged from 1 to 2% depending upon the grade of cotton, according to the mill. Savings were figured on cotton costs which were considerably lower than present ones. Improvements in working conditions resulting from the reduction in dust and fly-laden air were reported by card hands, and the superintendent stated that the use of continuous strippers eliminated all stripping operators except for two part-time operators who roller-stripped the cards weekly.

This report, along with similar detailed information on vacuum stripping, indicates that the mills are renewing the emphasis on a better way to strip a cotton card. Roller stripping continues in many mills, but some mill men state that they object to roller stripping because it requires two operators, increases the spread of fly and dust, employs removable belts and pulley, and effects no control, aside from the purely human control, of possible light-running sliver after the operation. On the other hand, some mill men favor the roller-stripping method because they claim

(Continued on page 216)



The continuous stripper is shown by sectional drawing, since from the exterior it appears as an integral part of the card or as an oval casing located at the back of the card and above the lickerin. It consists of a 1½-in shaft upon which sets of needles are mounted. The shaft is driven by a pulley and has a slight traverse or lateral motion as it revolves. As the shaft turns in a definite speed-ratio to the cylinder, the needles penetrate into the cylinder wire in predetermined positions which result from the stripper-to-cylinder speed ratio and from the needle spacings. Their action raises the fibers which are embedded in the cylinder. Since the continuous stripper raises the embedded fibers continually and automatically while the card is running, one southern mill finds that there is no need for stopping the card for conventional stripping at the intervals formerly required by roller-stripping methods. The mill's practice with continuous strippers requires a weekly roller stripping for each card; its former practice without continuous strippers required from two to three stripping operations per shift on some grades of cotton.

EDITOR'S NOTE: *Part of the material in this article was obtained from recent Southern Textile Association talks and discussions.*

An old friend
of the rayon industry returns
NOPCO* 1111
premier soaking oil and warp size softener

Back "in harness" for the first time since the beginning of the war, Nopco 1111 returns to assure rayon throwsters and weavers the same quality and uniformity which made it the standard in pre-war days.

*REG. U. S. PAT. OFF.

WRITE for data bulletins "Important Points Regarding Rayon Warp Sizing" "Nopco 1111 – Soaking Oil for Rayon Crepe Yarns."

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EVOLVED THROUGH RESEARCH

During the presentation of the safety award in the auditorium of B. B. Comer Memorial School, plant superintendents, chairmen of plant foremen's clubs, and chairmen of plant safety groups of Avondale Mills are seated on the platform.

As part of the presentation ceremonies, a program of entertainment was provided by the Comer School Band, Comer School Chorus, and the Alexander City Avondale Dancers shown here in a special safety tap-dance number.

NSC Presents Safety Award To AVONDALE MILLS

HIGHLIGHTS: *"Distinguished Service to Safety" award given for outstanding safety record—Acceptance speech cites need for constant and continued effort to prevent accidents.*

AN OUTSTANDING safety record was rewarded on Jan. 20, 1947, when the National Safety Council's "Distinguished Service to Safety" award was presented to Avondale Mills with appropriate ceremony at the B. B. Comer Memorial School, Sylacauga, Ala. Ray Ketchmark, staff representative of NSC, made the presentation which was accepted for the company by W. A. Turner, vice president and general superintendent.

In his acceptance of the award on behalf of all the employees of Avondale Mills, Mr. Turner called attention to the company's safety record over the last six years. He said, "In 1940, our frequency rate was 11.00 and our severity rate was 1.22. This decreased in 1941 to a frequency of 7.23, and in 1942 to 1.79, and continued until it reached a low of 1.31 in 1944. We completed 1946 with a frequency average of 2.75. The severity rate dropped from 1.22 in 1940 to 0.038 in 1942, rose again to 0.062 in 1943, then to 0.064 in 1944, and dropped to 0.060 in 1945. We completed the year 1946 with a severity rate of 0.957.

"There is a foolish old saying that 'accidents will happen.' Few accidents 'happen.' Most of them are the result of carelessness, lack of skill, or ignorance concerning the job. Rarely are there accidents among skilled drivers and expert swimmers. Few of the victims of electric shock are persons who study electricity and learn how to handle electric appliances. Few workers get hurt in plants where proper safety devices have been installed and where there has been a program of safety education."

The illustrations show Mr. Turner accepting the award from Mr. Ketchmark, a general view of the officials seated on the platform during the ceremony, and one of the entertainment features provided as a part of the program.

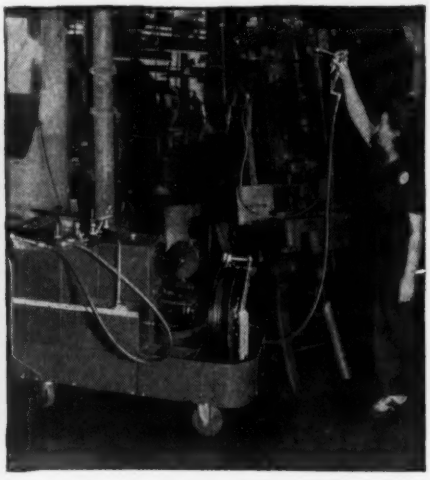
National Safety Council's award for "Distinguished Service to Safety" is presented by Ray Ketchmark (right), NSC staff representative, and is accepted on behalf of all Avondale Mills employees by W. A. Turner (left), vice president and general superintendent, at ceremonies in the auditorium of B. B. Comer Memorial School, Sylacauga, Ala., on Jan. 20, 1947.

For Textile Mills!

Complete Portable Lubrication Department with New Electric High Pressure Pump

● Without exception, this new Alemite Lubrikart is one of the most popular Alemite developments in a decade.

Here again is a typical example of how Alemite anticipates the needs of the textile industry in meeting its lubrication problems. For it is Alemite, and *only* Alemite, that provides the big 3 of lubrication—lubricants, lubricating equipment and methods of application—the prime requisites for safe, economical, positive lubrication. Alemite, 1888 Diversey Parkway, Chicago 14, Illinois.



Pushed like a perambulator, the new Alemite Lubrikart is designed for one person operation. Dimensions: 21" wide, 55¼" long, 39" high. Mounted on six-inch Bassick ball bearing casters. It is able to travel between rows of machines or anywhere in a plant where space is limited. It saves time because of less frequent returns to the oil storage room by the oiler.

High pressure lubrication is made available by simply plugging in the electric cord. The high pressure hose and electric cord are mounted on automatic spring return reels which permit freedom of operation 20 feet in any direction. The unit is also equipped with hand operated equipment for servicing hydraulic systems, oil reservoirs, gear housings and for filling oil cans and grease guns.

Positive lubrication is assured, neglect is ended because proper lubricants and equipment are brought to the point of use. The electric high pressure pump develops 4500 lbs. grease pressure. Other equipment includes hose reel, hose and hydraulic coupler; gear lube and oil containers; compartments for oil cans; space for fittings, tools, waste, etc. Write for complete details.

Another Product of STEWART WARNER

ALEMITE

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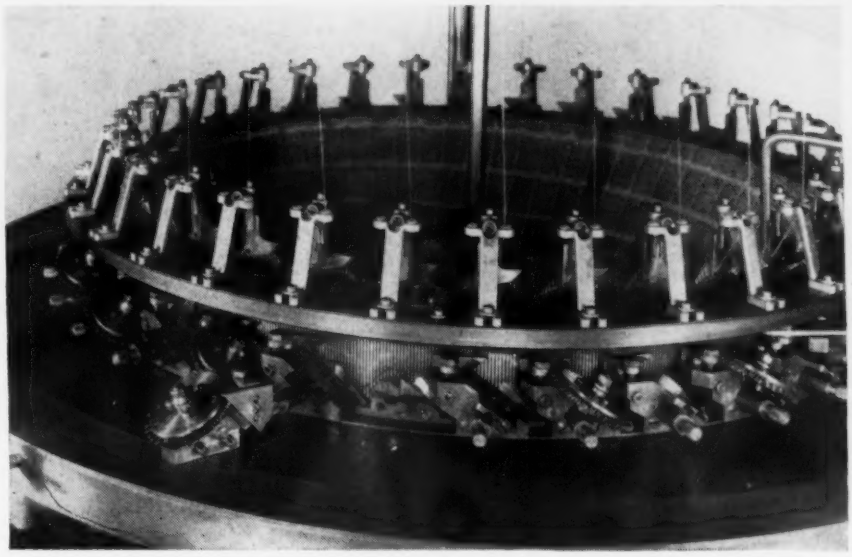
Alemite ALONE Combines all 3 in Lubrication

1. EQUIPMENT 2. PROCEDURES 3. LUBRICANTS

TEXTILE Equipment NEWS

Pattern-Wheel Machine Has Tuck-or-Knit Selector



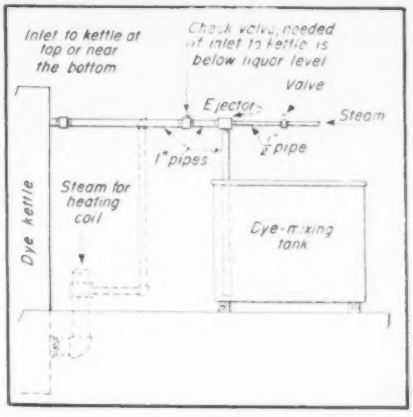
Model RO pattern-wheel knitting machine was engineered to meet the demand for jacquard-type machines. (Supreme)

The new Model RO pattern-wheel knitting machine, engineered specifically to meet demands for jacquard-type, fancy-pattern knitting, has been announced by Supreme Knitting Machine Co., Inc., 105 Johnson Ave., Brooklyn 6. Model RO is reported to open an entirely new field in the production of intricate patterns, designs, inlays, and lace cloth.

The illustration shows the knitting elements of the RO, with one section removed for clarity, and shows the double-fork sections with rotary tuck-or-knit selectors; the needle raising wheel cams with the built-in, hardened, sliding tucker cams; the precision pattern wheels, and the stitch cams.

The rotary tuck-or-knit selector is said to allow the operator manually to change each or all feeds from pattern-wheel work to jersey work, or back again, in a matter of seconds without adjusting or removing the pattern wheel.

The Model RO is made in 24-in., 32-feed size; other sizes with corresponding numbers of feeds are also available.



Steam-injection system for introducing dye to dye kettle utilizes venturi-tube ejector and perforated distribution pipe. (Riggs & Lombard)

Steam-Injection System Distributes Dye Evenly

A steam-injection method of introducing dyes into dye kettles has been announced by Riggs & Lombard, Inc., Foot of Suffolk St., Lowell, Mass. Developed by a finishing plant for its own use, the new system is said to assure even distribution of dye throughout the bath and, therefore, to promote more even dyeing. The system is designed to eliminate the errors of judgment or carelessness in manual distribution and to eliminate the hazard of operators being required to work with the boiling liquor.

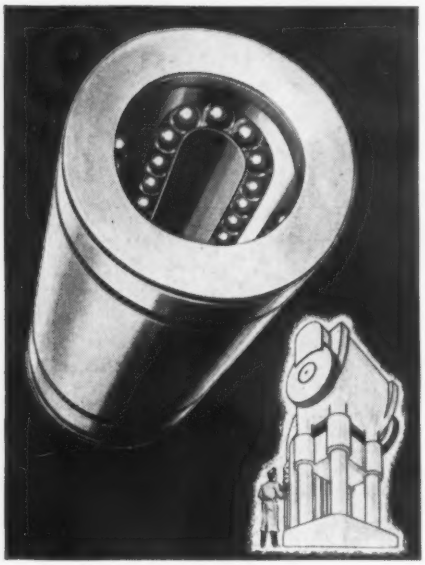
The system consists of a steam-pressure line leading to a perforated line extending into and across the false front of piece-dye kettles, and into the expansion tank of stock-dye kettles. The steam line forms the top of a *T*, the bottom of which leads to the mixing barrel. A venturi tube at the joint of the *T* creates a partial vacuum and sucks the dye out of the barrel into the line, from where the dye passes through the steam line and perforated pipe into the kettle.

Even distribution of dye and accurate control of rate of injection are said to be achieved merely by turning the valve in the steam-supply line.

Linear-Motion Bushing Uses Ball Bearings

A new anti-friction bearing designed for unlimited linear motion and for use on reciprocating or oscillating machine parts has been announced by Thomson Industries, Inc., 2905 Review Ave., Long Island City 1, N. Y. Called Ball Bushing, the new bearing can be built for round or square shafts or for semi-round, flat, or V-shaped ways in sizes to fit machines ranging from business machines up to giant power presses. Advantages claimed for the bearing are lower friction for both starting and running, negligible wear over a long period of time, close fit to shaft, compact assembly as contrasted to guide rollers, unlimited travel, minimized lubrication problem, and minimized maintenance and servicing problems.

The basic operating principle of Ball Bushings is the recirculation of ball bearings around an oblong track which consists of a working portion and a return portion. Distributed evenly around the inside circumference, each bushing contains from three to six ball circuits, depending upon its size. The curved end portions of each ball track contain internal bevel cuts to unload the balls during these parts of the circuit. Thus, when a bushing is moving laterally along a shaft, the balls are loaded during their travel down the straight, working por-



Anti-friction bearing for unlimited linear motion or for reciprocating motion is designed to reduce starting and running drag, eliminate lubrication problem, and minimize maintenance requirements. (Thomson)

tion of the track; are unloaded just before reaching the curved end portion; and remain unloaded down the straight, return portion and until completion of the turn back into the working track.

Standard sizes of Ball Bushings are made to fit the following sizes of round shafts: ¼ to 1 in., in ⅛-in. increments; 1 to 3 in., in ¼-in. increments; and from 3 to 4 in., in ½-in. increments. All standard sizes have a ball-contact, or working, length of slightly more than one shaft diameter.

New Tester Drive Gives Constant Load

Three new developments for application to testing equipment will be introduced at the Knitting Arts Exhibition by Scott Testers, Inc., 100 Blackstone St., Providence, R. I.

The Thy-mo-trol constant-rate-of-load drive for use on conventional pendulum-type textile testers is designed automatically to increase or decrease the speed of the driven clamp to eliminate from the upper clamp, or loading end, the effect of stretch in the sample. Developed in cooperation with General Electric Co., the new electronic drive is activated by a control attached to the loading end of the tester and is so designed that it can be cut in or out of the driving circuit by a small switch.

A newly developed fabric clamp designed for use on synthetic-yarn fabrics is said to minimize slippage by gripping more firmly at the front edge than at the rear, thereby obtaining more correct strength values and more accurate elongation readings.

A new gear box developed for incorporation into the standard IP-2 incline-plane serigraph is designed to provide for both slow and fast return at the completion of the test, whichever speed is desired under the particular circumstances.

New Cotton Card Has Improved Details

A new cotton card, Model L, has been announced by Whitin Machine Works, Whitinsville, Mass. Already thoroughly tested under mill conditions, the new card has many features which should give improved performance, easier operation, and reduced maintenance.

The frame, sides, cylinder-box pedestal, and arches have been strengthened to provide greater rigidity, to reduce vibration, and to aid in maintaining proper settings. Oilite bearings have been provided in most locations, which is said to insure maximum lubrication efficiency and to reduce replenishment frequency. All gears have cut teeth for quieter, smoother, operation; and all parts are designed to be interchangeable between all machines.

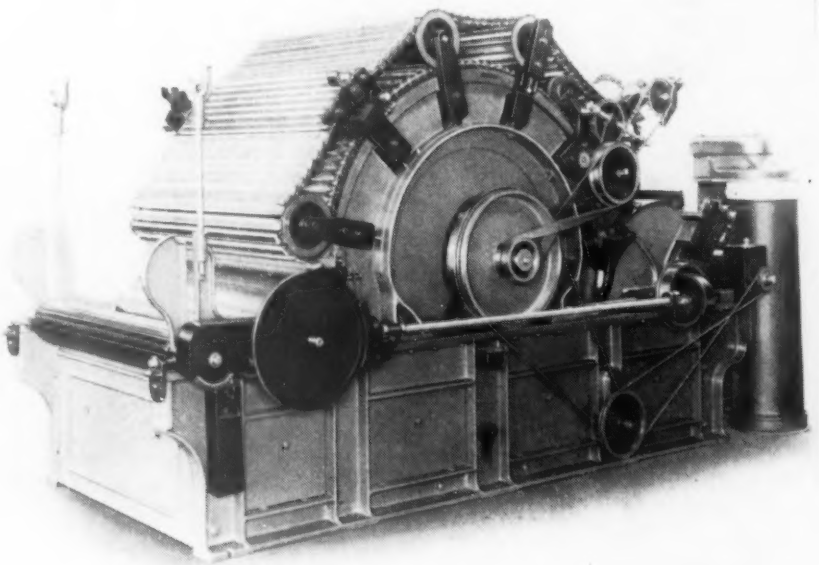
Adjustments are said to be easier to make on the flats and doffer; a change in the doffer setting does not alter the doffer-grinder setting. To equalize oil distribution on the worm-drive shaft, one end of this shaft has been lowered, which is said to improve efficiency of the top-flat drive. Constant speed of the spiral brush is assured by a chain drive. The coiler drive has been simplified; a pair of friction collars on the calender-roll shaft are designed to act as a safety device to stop the driving gears automatically in the calender-roll section or coiler should a clog occur.

The feed plate has been strengthened to resist deflection caused by pressure of the feed roll, and the feed-roll weighting system has been simplified.

The lickerin is made from heavy-walled steel tubing. The sides of the cylinder screen extend around the cylinder to exclude drafts and prevent side waste.

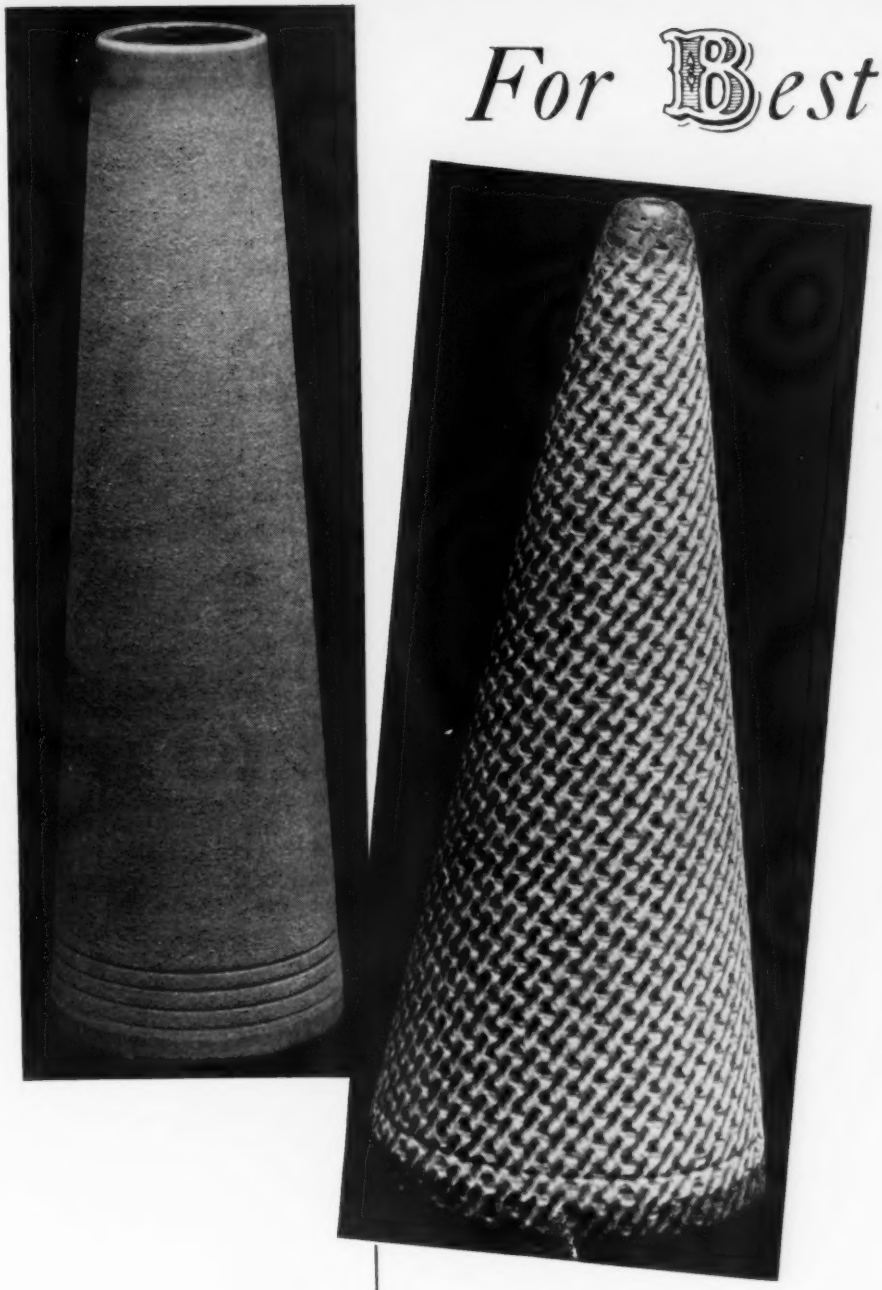
Lockstitch Machine Has Improved Oiling

A new lockstitch machine incorporating a number of improved mechanical-design features which result in increases in speed and smoothness has been announced by Union Special Machine Co., 400 N. Franklin St., Chicago. Chief among the new features are a new, lightweight, magnesium take-up; a redesigned, lighter-weight needle bar and counterbalanced needle-bar driving mechanism; needle-type bearings for needle-thread take-up; and a new mounting method which isolates the machine from the table board. Use of "ultra-finished" bearing surfaces and dynamic balanc-



New Model L cotton card embodies improvements designed to give better performance, easier operation, and less maintenance. (Whitin)

For Best Results



Be sure you are using the right cone for the right purpose

The right combination of cone, yarn and conditions gives the best results. The two most popular *types* of SONOCO cones are shown here. . . . Each available in variations of size, surface nose finish, weight and treatment to meet varied requirements. . . . And SONOCO makes many other type cones as well to fit every known textile need. Our Technical Service Department Engineers are available to advise on matters that in any way pertain to the use of our products.

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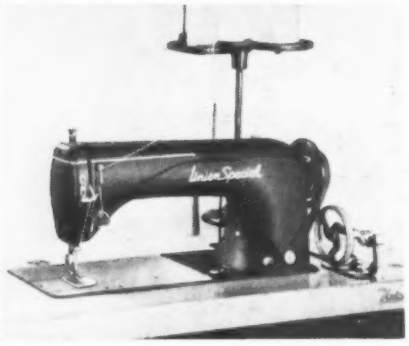
DEPENDABLE SOURCE OF SUPPLY



New lockstitch machine features lightweight parts and needle bearings for higher speeds. (Union Special)

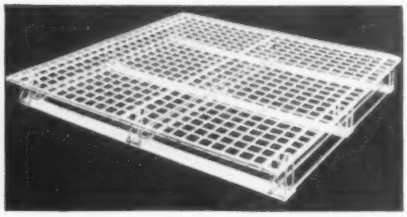
ing of moving parts also contribute to improved performance.

A new screw-conveyor oil feed for the hook raceway is designed to provide positive-controlled lubrication from an oil reservoir to the hook without a pressure pump and to permit easy flushing and quick external adjustment for hook oil-flow regulation without disturbing the hook. Improved oiling is also provided for the lower main-shaft bearings, feed rocker, and feed-lift bearings by means of an oil passage in the main shaft. Two simple oil-level sight gages have been added. A new, light-weight handwheel improves acceleration.

At the present time, the new machine is built in two styles: 61300 HA, low throw, with 1 9/64-in. needle-bar travel; 61300 JA, medium throw, with 1 13/64-in. needle travel.

Steel-Wire Pallet Permits Economies

An 8-way steel-wire pallet announced by H. E. Fletcher Co., West Chelmsford, Mass., is said to offer the following new opportunities for the economical handling of a wide variety of materials: collection of moisture frequently occurring on flat surfaces is eliminated by the open mesh construction; it is impossible for vermin to lodge upon the pallet and cause expensive spoilage to perishable loads; the wire mesh is completely fireproof and covered with a protective coating of good conductivity which prevents the building up of static charges and the consequent danger of sparking; the paint protects the pallet from corrosion; and the assembly facilitates the strapping of varied types of containers into stable, shock-resisting loads. The pallets are available in varied sizes for plant, warehouse, rail, or truck handling.



The Fletcher 8-way pallet is so called because of the eight separate pallet spaces in its construction. Demonstrated at the Materials Handling Show, the pallet is made with a variety of steel-wire mesh, diagonals, trusses, and special bracings in order to handle different loads. (Fletcher)

New Fork Truck Has 130-In. Lift

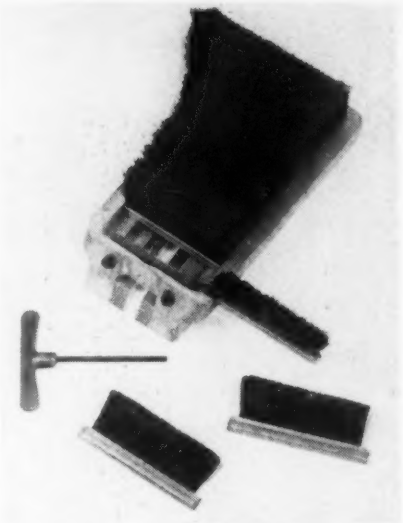
Completely electric powered and equipped with high-pressure hydraulic lift, the Transtacker is made in four models designed for all types of pallets and skid platforms. (Automatic Transportation)

A new telescopic, tilting, hydraulic-lift, electric fork truck, called Skylift, has been announced by Automatic Transportation Co., Chicago, Ill. The truck has a standard 83-in. collapsed height and a lift up to 130 in. The Skylift has pneumatic gear shift; capacity is from 2,000 to 4,000 lb.; and the machine is said to operate like a car. Disk-type traction brake, silicone-varnish insulation of the electrical system, flow-control valves in the hydraulic system, and full "dead-man" control are said to be the special features of the new fork truck.

Brush for Noble Comb Features Strip Design

A new, improved dabbing brush for Noble combs has been announced by The Fuller Brush Co., 3000 Fuller Park, Hartford 2, Conn. Having been proved by operation in a number of leading mills, the new brushes are reported to embody several improvements over older designs.

A greater brush density is provided, which is reputed to permit the bulky



New dabbing brush for Noble combs is composed of one-piece metal casting of magnesium fitted with brush strips which are replaceable and which can be reversed end-for-end when they become worn. (Fuller)

short and fine wools to be dabbed into the pins more firmly than with other brushes.

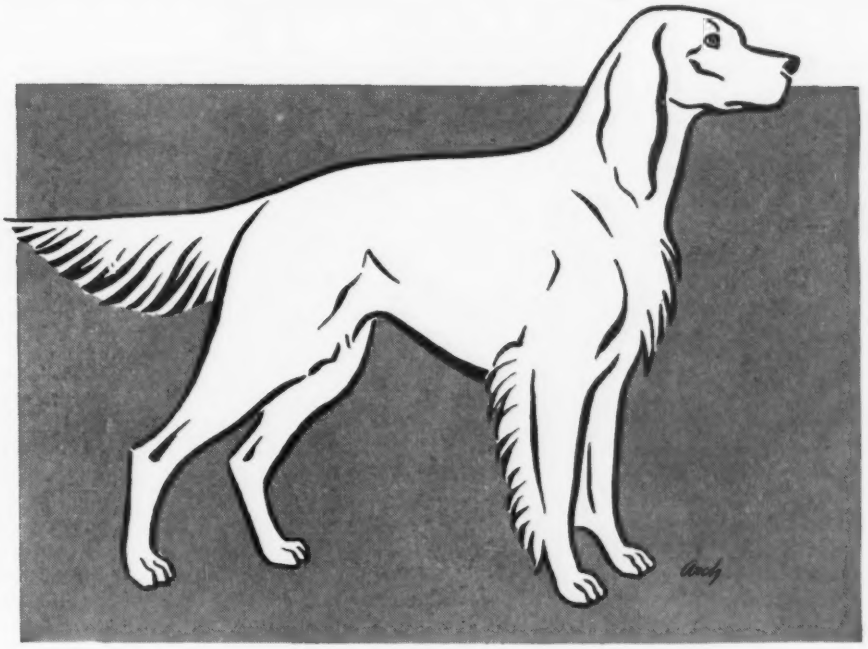
Twenty-one brush segments make up the brushing surface of the new brush. Since it is the custom of most combers to set their brushes so that the tangent point of comb circles will work on the inner side of brush centers, the new strip construction is designed to make it possible to allow for wear on the heel of the brush by reversing one or several of the brush strips end-to-end, thus presenting a new dabbing surface and reducing replacement costs.

The brush segments are securely held in a light-weight, one-piece, heat-treated casting of Dow magnesium, reported to be a permanent, life-time backing which will not split or absorb oil. The casting can be drilled or slotted to fit any foot-plate set up, it is stated.

Sliver and Yarn Tester Takes Wide Range Sizes

A new sliver and yarn tester said to be capable of evaluating the uniformity of practically all yarns processed on the worsted, woolen, cotton, and other systems has been announced by Pacific Mills, Worsted Div., Lawrence, Mass. Adaptable for either yarn or sliver, the machine incorporates a proportioned weighting system said to permit slivers of all sizes to be directly compared with respect to their established uniformity.

Determination of the weight of a



A front rank bird dog, the setter is remarkable for his intelligence and the long distance he can scent game. A tireless worker, he stands up well under shooting and ranges wide, quartering the ground systematically. On finding the bird he remains motionless, pointing steadily. Devoted to home and master, the setter is a highly prized companion.

YOU KNOW THE BREED ... *What of the Pedigree?*

Just a dog to some, a Setter to others, but the practised eye of the expert identifies it as a pedigreed Irish Setter.

Although your products' quality is similarly recognized by a limited field of connoisseurs, it is to the vast market of non-experts, that its blue-ribbon quality must be instantly identified. Kaumagraph Dry Transfers* provide the easiest, most economical and attractive method of achieving quality emphasis. Whether on textile, leather, rubber or synthetic material, this clean, safe, seen-at-a-glance identification instantly singles out your product from others of superficial similarity.

Point your product to consumer preference now with the added appeal of KDT marking. Scent out sales with eye-catching Kaumagraph Lithography for your package or display. Send for a Kaumagraph man today.

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REPRESENTATIVES IN PRINCIPAL TEXTILE CENTERS OF THE WORLD

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given sliver or yarn without actually weighing the material is one of the features of the tester; such weight determinations are based on a fiber-content basis, regardless of moisture, oil, or common finish content of the strand being tested. Using the machine, both weight and uniformity of a strand can be established simultaneously, by sight, within a very few minutes, it is stated.

An additional feature of the machine is its ability to provide a permanent record, in the form of a chart, of each test run.

Electric Lift Truck Stacks 4,000-lb. Load

A new fully powered electric hand truck which features a lift platform for stacking, unstacking, or picking up loads from elevated docks or tailgates has been announced by Yale & Towne Mfg. Co., 4530 Tacony St., Philadelphia 24. The new truck is designed to fill a need for equipment mid-way between the simple hand truck and the high-lift platform truck.

Two models are available, one which can lift a 7-in. skid to a height of 66½ in. and one which can lift an 11-in. skid to 70½ in.; lifting capacity of both models is 4,000 lb. The units are designed to turn a right angle within 91 in., to turn within a circle of 95 in., to negotiate aisles 54 in. wide, and to climb 9% grades.

(*Continued on page 228*)

New fully powered hand-type lift truck negotiates 9% grades, turns in a 95-in. circle, and stacks to a height of 70½ in. (Yale & Towne).

DYES & CHEMICALS — PRODUCTS & PROCESSES

Leveling Assistant Scours, Emulsifies

LAMEPON A; Protean Chemical Corp., 545 Fifth Ave., New York 17.

A new scouring, emulsifying, and leveling agent for use on cotton, synthetics, and wool, called Lamepon A, has been announced by Protean Chemical Corp. As a detergent, the material is claimed to increase the cleansing power of scouring solutions, to function as a protective colloid, and to be somewhat amphoteric; it is reported to counteract hardness in water by dispersing lime soaps. Lamepon A is reported to emulsify waxes, greases, fatty substances, solvents, and oils and to promote stabilization of emulsions, even with hard water; it combines dispersion, lime stability, and emulsification with wettability, it is said. In processing wool, Lamepon A is reputed to reduce harshness produced by alkali.

As a leveling and retarding agent, the material is an aid in achieving uniform, level results, and fresh, bright shades, it is claimed. The new assistant is reputed to be completely rinsible and not to possess substantivity.

Lamepon A is miscible with water and has an adjusted pH of 9.

Synthetic Detergent For Delicate Shades

STRODEX D; Textile Chemical Div., Dexter Chemical Corp., 819 Edgewater Rd., New York 59.

Strodex D, a synthetic detergent for use on delicate shades, has been announced by Textile Chemical Div. of Dexter Chemical Corp. It is a smooth cream-colored paste, readily soluble in water at 120 to 125° F.

For scouring, its range is reported to be wider than that of soap; it is said to be easily rinsible and to have high resistance to hard water, acids, alkalies, and salts. When used in hard water, no scum forms and no precipitation appears, and even weak solutions show a fine strong lather, it is claimed. The concentrations of acids or alkalies normally used in textile processing reputedly do not affect the action of Strodex D, which is reported to be stable enough to be used in solutions of oxidizing agents.

Natural-Rubber Latex Has Reversed Charge

POSITEX; The British Rubber Development Board, 19 Fenchurch St., London, E. C. 3, England.

Positex, a new form of natural-rubber latex with reversed charge, has been announced by The British Rubber Development Board.

Positex is deposited on yarns as discrete particles instead of as a continuous film and is said to be almost undetectable by eye or hand when applied in ratios of 10 to 15%. Application of the material to yarns is reported to make the strength of soft-twist yarns equal to that of hard-twist yarns, to reduce wear by decreasing fiber loss from yarns, and to prevent "balling" of fibers in yarns. It can be used to prepare felts from non-felting fibers, such as cotton, jute, etc., it is stated; and such felts are not waterproofed and still maintain their air permeability.

Positex is applied in an alkaline aqueous soultion in which the rubber is positively charged due to its reversed electrical reaction. Textile fibers are negative to alkaline solutions; hence, the electrical attraction between the two substances deposits the rubber on the fiber, resulting in complete take-up and water-clear bath, it is reported. It is claimed the amount deposited is easily controlled since the yarn will absorb any amount present up to 25%.

The even deposition of the latex is reported to make it possible to treat yarn in hank, cheese, or cone form without danger of sticking. Drying problems are said to be simple, since the bulk of the water can be removed mechanically.

Two grades of Positex are available, vulcanized and unvulcanized, each of which is prepared and compounded for certain applications. Both grades are ready for immediate use after addition of water and adjustment of pH. The rubber material has a pH ranging from 3 to 11.

The new rubber material can be compounded with a great variety of substances, such as pigments, scents, mothproofing agents, water repellents, and others, it is said.

Positex does not impart elasticity to a yarn.

Ambertex FOR TEXTILE PRINTING

sharp in detail and color

AMBERTEX yields prints with razor sharp detail. It is a grit-free, heavy-bodied printing thickener that is readily diluted to a free-flowing consistency with cold water . . . highly resistant to the thinning-out action of strong alkalis . . . and sufficiently cohesive to hold patterns to the exact proportions of the original engravings.

Unlike ordinary textile gums which usually reduce color values, AMBERTEX actually increases the color yield. It improves the quality of the color paste . . . penetrates the cloth uniformly . . . and rinses readily in cold water.

AMBERTEX is equally suitable for *color printing* acetate, direct, vat, Rapidogen or Pharmasol, and Indigosol or Algosol colors by screen or roller machine; and *white discharge printing* on all types of fabrics.

National also produces: **FLOTEX** to replace natural gums for printing; **FIBERTEX** for textile finishing; **NALEX** for cotton and worsted warp sizing; **FLOJEL** uniform, thin boiling corn starches in all standard fluidities; **HOOSIER** Pearl Cornstarch; **TABLE ADHESIVE** for screen printing.

Offices: 270 Madison Avenue, New York 16; Boston, Philadelphia, Atlanta, New Orleans, Indianapolis, Chicago, San Francisco and other principal cities. In Canada: Meredith, Simmons & Co., Ltd., Toronto. In Holland: Nationale Zetmeelindustrie, N. V., Veendam.

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STARCH PRODUCTS

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Kinks AND SHORT-CUTS

★ **SAVINGS BOND PRIZE FOR MARCH**
(January Contest)

A $25 SAVINGS BOND FOR YOUR IDEA

A $25 Savings Bond will be awarded each month for the most useful "kink" published in this department. This contest is open to all readers of TEXTILE WORLD, and there is no limit to the number of entries any one person may make.

Contribution must be received not later than the last day of the month to be eligible for the award for the second succeeding month. Items may pertain to production methods, mill engineering, safety, cutting costs, improving quality, speeding up production, in brief any little device, stunt, kink, or short-cut which you have tried out in your own mill which you believe will be helpful to other mill men. Items should contain sufficient detail to permit other mill men to utilize the ideas in their own operation. Previously published material is not eligible for the award. Judges of the contest are the editors of TEXTILE WORLD.

TEXTILE WORLD shall have the right to publish any item submitted. Items which are accepted will be paid for at our regular rate for this type of matter with extra payment for appropriate sketches or photographs. The sketch you submit need not be a finished drawing.

In writing to this department, give your real name and address as evidence of good faith and to permit payment for items accepted. Please advise whether your name may be used with the kink.

Contributions should be addressed to: Technical Editor, TEXTILE WORLD, 330 West 42nd St., New York 18, N. Y.

Terra-Cotta Finishing Tanks Solve Corrosion Problem

The use of caustic soda in making a bleach solution has a tendency to harden cotton fibers. Since sleeping garments for infants should be soft, yet strong, we found that sodium hypochlorite gives better results, both as a bleach and as an aid in maintaining a soft texture.

For a number of years we used metal tanks for mixing the soda ash with water and chlorine to give us sodium hypochlorite. However, we found that the metal mixing tanks were being eaten away and had to be replaced periodically. This replacement slowed operations while the repairs were being made and was also expensive. In order to overcome this constant cost, we replaced all metal tanks with large terra-cotta-pipe sections mounted on concrete foundations. We have had no replacements since these installations were made.

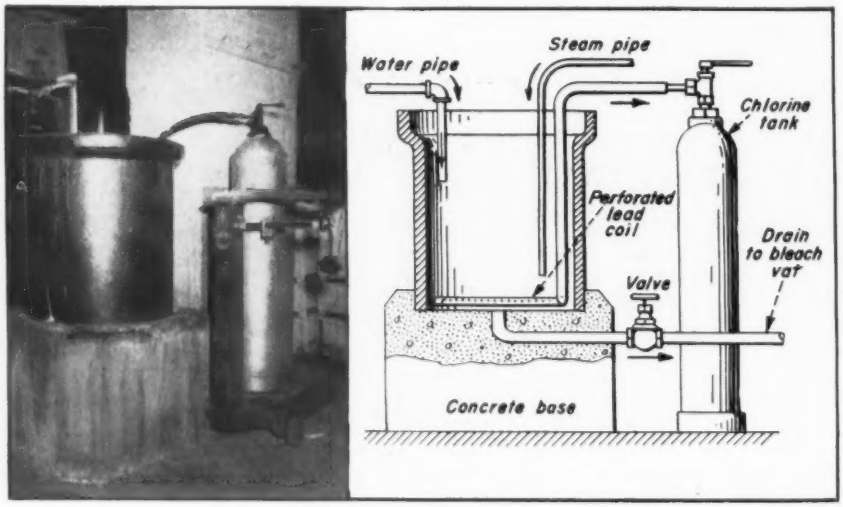
To install a terra-cotta tank, a concrete foundation is built near each bleaching vat, and a section of large terra-cotta pipe is embedded in the concrete. The perforated lead coil is then set in the bottom of the tank and connected with the chlorine tank. Steam and water pipes are installed. The drain pipe to the bleach tub is built in the concrete foundation, and the drain is controlled by a valve.

While the tanks are only about 27x34 in., sufficient sodium hypochlorite can be mixed at one time to bleach approximately 1,500 lb. of cloth.

We have found that the sodium hypochlorite is more reliable but less stable than caustic soda. Small batches, however, make it possible for us to control the bleach better than we could control the caustic-soda bleach. Since some of the bleaching qualities of the liquor are lost during reuse, we make a new bleach solution for each loading of the vat. (K-623)

Improved Thread Guide Gives Better Color Control

In four-ply (and other numbers of plies) twisting of colored woolen yarns, trouble is sometimes encountered as a result of the ends rolling out of their proper positions, as regards the color scheme. For example,



By replacing metal tanks with tanks made of sections of large terra-cotta pipe, one mill has avoided the problem formerly created by the corrosion of the metal tanks. Inset shows details of how the working parts of the mixing tank were installed in conjunction with the terra-cotta container.

Improve Your Spinning—Cut Your Costs!

Get up to

40% MORE YARN PER BOBBIN...

Here you see the larger package produced by paper-tube spinning on the new Joanna Aluminum Adapter compared with conventional warp package.

★ Patent Pending

Change to Paper Tube Spinning Quickly With Your Present Spindles!

Investigate the many advantages of converting your present spindles to paper tube spinning (straight or tapered bobbins) with the Joanna Adapter. Your spinning will be improved immediately, because the bobbins will be driven correctly—from the top. You will get up to 40% more yarn per bobbin, and doff them every ten hours in most cases, instead of every six hours and twenty minutes for the old wooden type.

Your saving in doffing and spooling alone can pay you 30% annually on your investment in converting with the Joanna Adapter. You will also effect other savings by eliminating waste on the spoolers and reducing ends down as much as 50% an hour.

The application of the Joanna Adapter to your spindles (made to your own specifications for the particular conditions in your mill) usually does not exceed $1.50 per spindle. This cost includes the Adapter and the complete reworking of your present spindles to extremely accurate dimensions. The Adapter is now being used by Joanna Textile Mills Co., Goldville, S. C. and other leading mills.

We invite you to try the Joanna Adapter on one frame and compare the improved results.
Send samples of your spindles for quotation.

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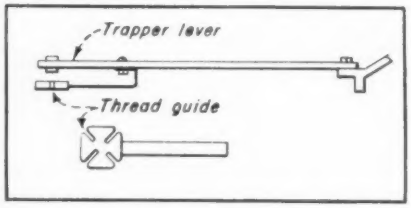
KINKS & SHORT-CUTS

(Continued from page 152)



A four-way thread guide, attached to the trapper lever and located just under the pot guide of a woolen-yarn twister, will prevent rolling of the ends and insure correct color effect in the plied yarn.

suppose a 12/4 knitting yarn is being twisted and the four ends are arranged one orange, one brown, and two fawn. If the ends roll and are actually twisted as one orange, one fawn, one brown, and one fawn, a different color effect is produced in the yarn.

We have found that a four-way yarn guide, attached to the trapper lever as shown in the accompanying sketch, will aid in maintaining the plies of yarn in their correct positions. This guide, located just under the pot guide, prevents rolling of the yarns. *(K-619)*

Heated Storage Chamber Aids Opening of Rayon

The first opening of short-staple synthetic fibers should be carried out in such a manner as to subject the fiber mass to reduced humidity, according to U. S. technical report on the *Denkendorf Lehrspinnerei*. The machine recommended for this opening process consists of a blending feeder delivering to a mixing chamber equipped for heat reduction of humidity (TEXTILE WORLD, Feb. issue).

The procedure for using this machine, shown in the accompanying sketch, is as follows:

The bales of synthetic fiber are loosened and the material is fed to the hopper. The hopper is equipped with comb roll *a* to aid in feeding the stock lightly and evenly to the pneumatic delivery line *b*. This line is heated by air that passes over heating device *c*.

At the bottom of delivery line *b* is a slot, as shown in sketch *B*, through which heavy foreign matter can be removed. Air current *d*, which enters *b* through the slot, is sufficiently strong to prevent bunches of fiber from falling through the slot.

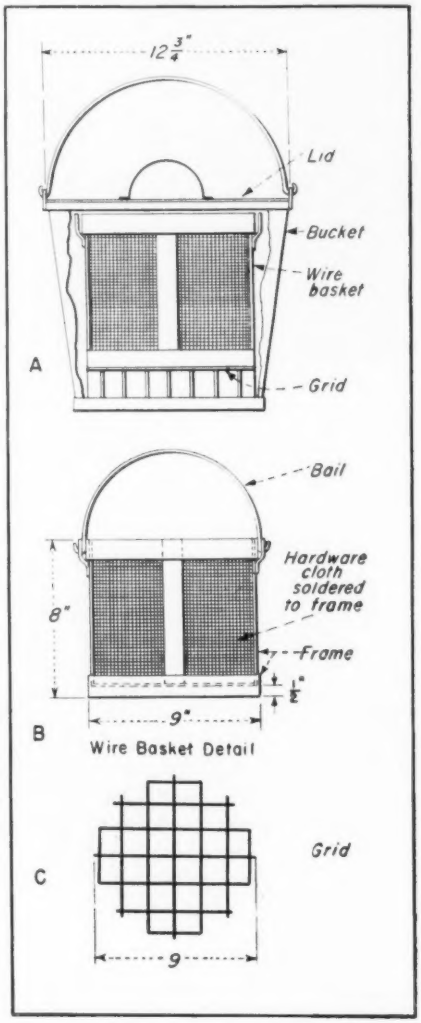
The stock is conveyed to the mixing chamber, where it is allowed to remain for at least 24 hr. The relative humidity of the mixing chamber is kept below 55%, preferably around 45%. *(K-631)*

This Arrangement Permits Proper Washing of Bearings

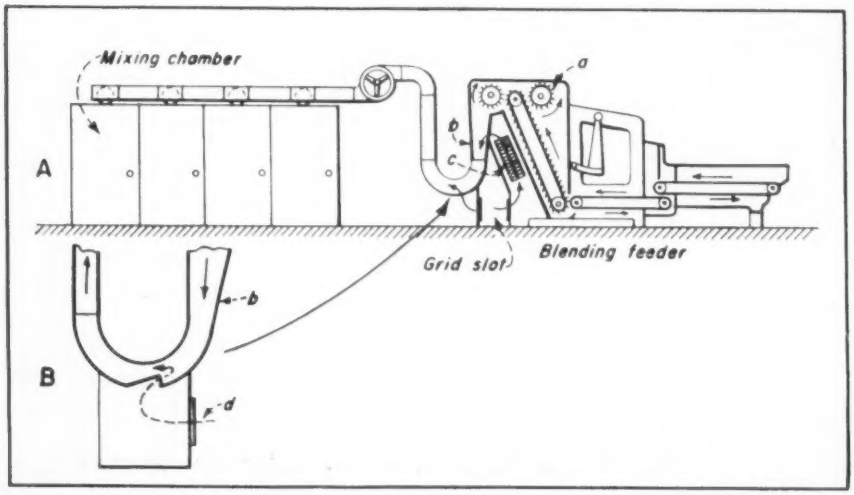
Cleaning a large number of ball bearings, as when a machine such as an Abbott winder is overhauled, is a job that is poorly done in many mills. Sometimes, the bearings are cleaned by being sloshed around in the bottom of a bucket of oil where dirt and grit from previously washed bearings have a good chance of getting in new or little-worn bearings. This condition, of course, will cause trouble when the bearings are put back in operation.

An arrangement, shown in the accompanying sketch, that will aid in avoiding such damage to bearings consists of: (1) a standard 14-qt. galvanized-iron bucket to serve as a container for the cleaning fluid, (2) a wire basket for holding the bearings, and (3) a strap-iron grid to create a settling area inside the bucket.

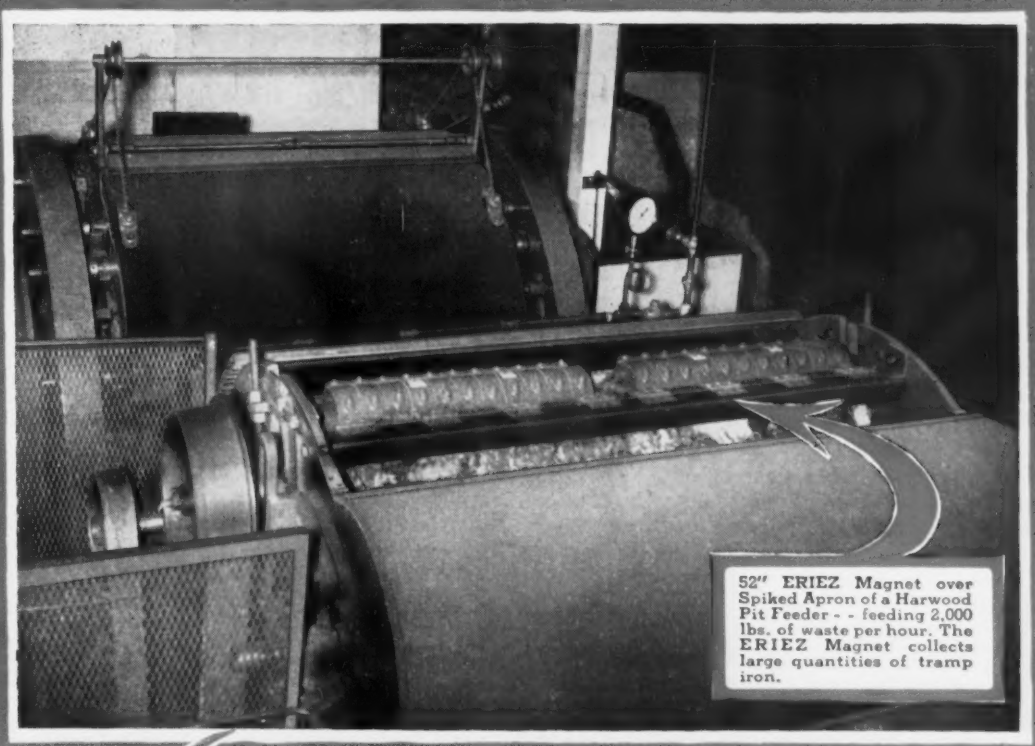
The outside diameter at the top of the bucket is 12¾ in. The basket should be made about 8 in. high and 9 in. in diameter. Galvanized hardware cloth (4x4 mesh) soldered to a frame constructed of ⅛x1-in. strap iron riv-



Better ball-bearing service can be obtained if care is observed in washing and temporarily storing bearings, particularly of the overhauling period. This assembly for washing bearings consists of a bucket, a wire basket, and a grid. Dirt or grit washed from the bearings settles in the grid pockets, where it is prevented from coming again into contact with the bearings being washed.



To permit better opening of the fibers and better control of the amount of moisture in the fibers, it is recommended that short-staple synthetic fibers be first processed through a blending feeder and stored in a mixing chamber at 45% r.h. for at least 24 hr. before conveying the stock to the pickers.

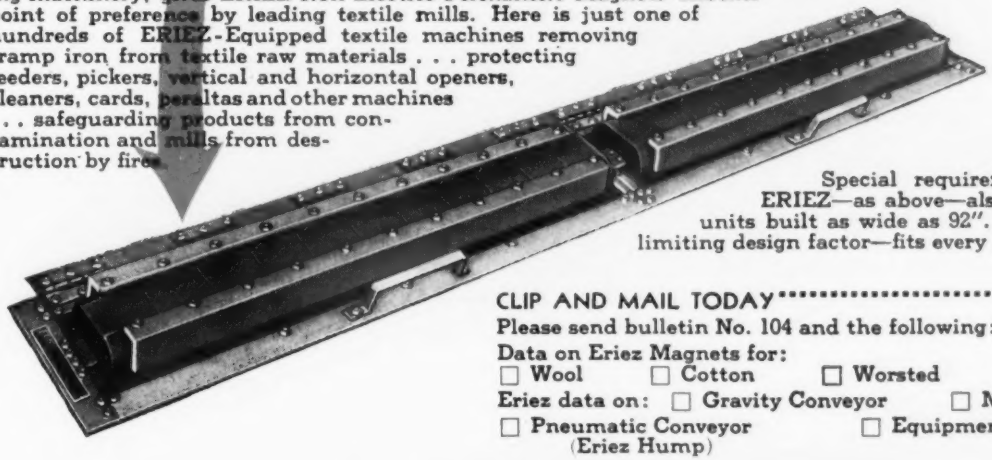


52" ERIEZ Magnet over Spiked Apron of a Harwood Pit Feeder - - feeding 2,000 lbs. of waste per hour. The ERIEZ Magnet collects large quantities of tramp iron.

Eriez NON-ELECTRIC PERMANENT MAGNETS

Engineered to fit your requirements-

Flexibility in design to fit perfectly into textile processing lines and on processing machinery, gives ERIEZ Non-Electric Permanent Magnets another point of preference by leading textile mills. Here is just one of hundreds of ERIEZ-Equipped textile machines removing tramp iron from textile raw materials . . . protecting feeders, pickers, vertical and horizontal openers, cleaners, cards, peraltas and other machines . . . safeguarding products from contamination and mills from destruction by fire.



Special requirements are easily met by ERIEZ—as above—also Special ERIEZ Magnetic units built as wide as 92". ERIEZ Protection has no limiting design factor—fits every application.

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KINKS & SHORT-CUTS

(Continued from page 154)

cted together will make a satisfactory basket (see sketch *B*).

The grid, sketch C, is circular in shape and 9 in. in diameter. It is made of lengths of $\frac{1}{8}$x$1\frac{1}{4}$-in. strap iron spaced $1\frac{3}{8}$ in., center to center, each way.

To use the assembly, place the grid in the bottom of the galvanized-iron bucket and pour the cleaning solvent or penetrating oil into the bucket. Place the bearings to be cleaned in the wire basket and lower the basket into the cleaning fluid in the bucket. Agitate the fluid by moving the basket up and down in the bucket. The grid in the bottom of the bucket provides settling pockets into which dirt or grit removed from the bearings can drop. These pockets will not permit such impurities to be stirred up again into the working body of the cleaning fluid as the fluid is agitated by the basket.

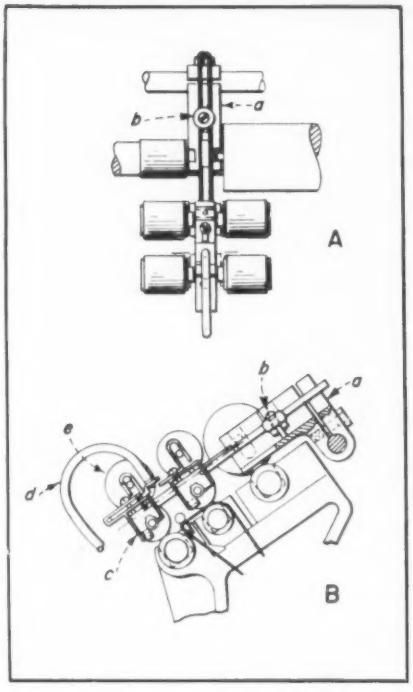
After the bearings have remained in the solvent for a while, they should be washed again by agitating the liquid. The basket and the bearings should be removed from the solvent and placed in another bucket to drain. After they have drained sufficiently, they should be placed in a third bucket containing the type of oil that will be used on the bearings when they are running. If the bearings operate in grease, a light oil similar to spindle oil should be used in the third bucket. While the bearings are stored in this bucket, the bucket should be provided with a tight cover, so that no impurities can get in the bearings.

When the bearings are needed to reassemble the winder, remove the wire basket from the storage bucket and set it in an empty bucket for the bearings to drain. If the bearings are not mounted immediately in the machine, place them in a dry storage bucket and keep the bucket closed tightly until the bearings are placed in running position. *(K-617)*

Oscillating Roll Holder Replaces Spinning Cap Bars

A "standard" arrangement for oscillating top rolls for ring spinning frames was developed in Germany, according to U. S. technical report on the *Denkendorf Lehrspinnerei*. The arrangement consists of a means for holding a top roll in the center of the arbor instead of using cap bars to hold the arbor at each end.

Advantages claimed for an oscillating roll are: (1) it automatically adjusts itself in a position parallel to the axis of the bottom roll, and (2) it requires no lateral guide to make this automatic adjustment.

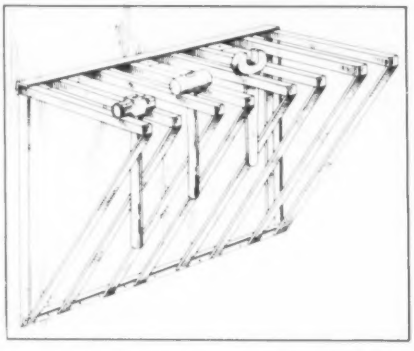


The use of two cap bars, engaging the ends of the arbors of top rolls on ring spinning frames, was replaced in Germany by this single top-roll holder. Engaging the roll in the middle of the arbor, this holder permits the rolls to oscillate. By this means, the top rolls automatically adjust themselves in a position parallel to the axes of the bottom rolls.

The arrangement, shown in the accompanying sketches, is actually a revised cap bar that engages the top rolls at the points at which weighting saddles engage the rolls in a conventional arrangement. Roll carrier **a** is secured to the cap-bar roll behind the back spinning roll. The oscillating arm is pivoted to *b* at point a. To this arm, weighting saddles **c** are fastened. These saddles transfer weight to the rolls from weight-lever *d*, but they also hold the rolls in position over the bottom rolls. In the arrangement shown here, holders for revolving clearers **e** are attached to saddles **c**.

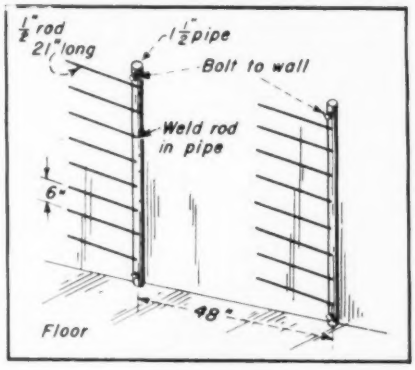
An additional advantage to the use of this arrangement is said to be that lap-ups can be removed without removing the top rolls, since the rolls are not fixed in a lateral position. *(K-632)*

Large Hand Tools Stored in Simple Rack



A rack built against the wall or inside a workbench or locker provides convenient storage space for large hand tools, such as sledge hammers, mallets, large pipe wrenches, etc. The size of the rack should, of course, be tailored to meet the needs of the tools to be stored. Short lengths of 1x1-in. lumber, angle iron, or bar stock may be used as construction material. (K-624)

Harness Storage Rack Prevents Loss by Breakage



Twenty sets of harnesses are safely stored on a rack made as shown here. Broken harnesses, reeds, and lease sticks that formerly resulted from a lack of adequate storage means have been eliminated by the use of such a rack.

Instead of drawing in our warps, we use a Barber-Colman knotter and tie the warps in at the looms. Frequently we have to put in lease sticks and take the harnesses from a loom. Because we had no suitable means for storing these harnesses, the harnesses, reeds, and lease sticks often were lost as a result of being broken. I overcame this trouble by building and using a harness rack similar to the one shown in the accompanying sketch.

To make such a rack, secure two pieces of $1\frac{1}{2}$-in. pipe about 3 or 4 ft. long. Drill a bolt hole near each end of these pieces of pipe, and fasten the pipes to the wall in a position perpendicular to the floor. For storing our warps, I placed these pipes 48 in. apart. (If desired, lag screws may be used instead of bolts for fastening the pipes to the wall. If the wall is of brick or concrete, heavy metal plates may be

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STYLES. The new streamlined Lockstitch is being built in "low throw" *Style 61300 H* with 1-9/64" needle bar travel for work on light and medium weight materials and "high throw" *Style 61300 J* with 1-13/64" needle travel for medium to medium heavy work.

Union Special
Machine Company

403 N. Franklin St., Chicago 10, Illinois

KINKS & SHORT-CUTS

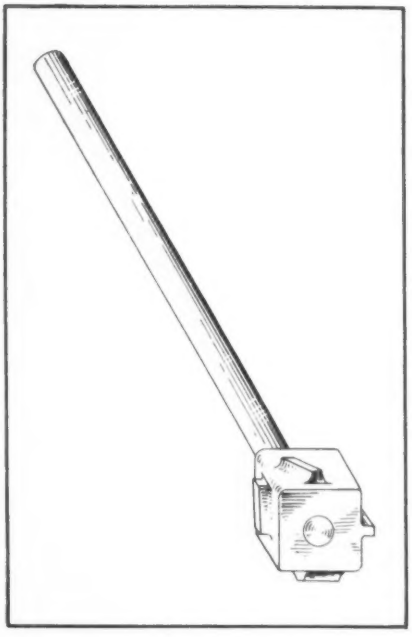
(Continued from page 156)

used on the floor to anchor and support the pipes in an upright position.)

At corresponding points 6 in. apart in the length of each pipe drill holes to receive ½-in. rods. Place one end of 21-in. lengths of ½-in. rod in each hole, and weld the rods to the pipes so that the angle immediately above each rod is about 80°.

To use the rack, it is necessary only to place the harnesses over the 21-in. rods so that the harnesses hang straight. A rack made to these measurements holds 20 sets of harnesses in our weave room. *(K-614)* Guy E. Stephenson, Columbiaville, Mich.

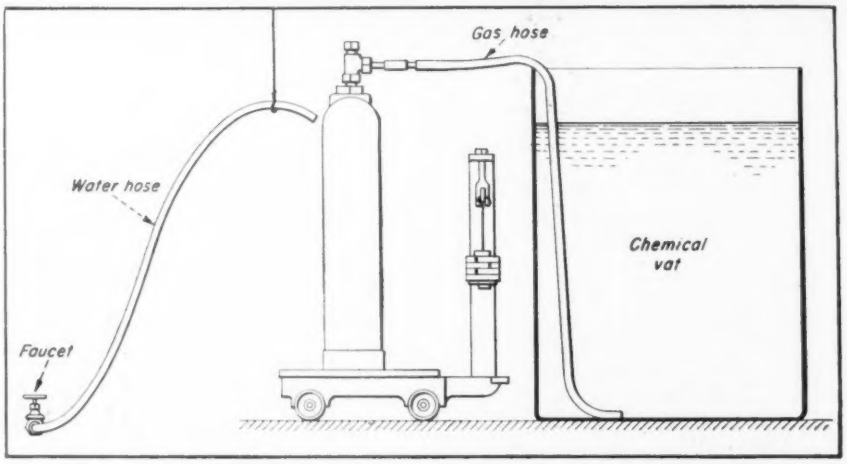
Four-Way Screwdriver Has Versatile Bit Head



Double-end screwdrivers are not uncommon, and they fill a need; but the four-way screwdriver shown here constitutes a considerable improvement on the two-way driver.

This screwdriver has four bits on its head, and each bit is set at a 45° angle from each of the two adjacent bits. This arrangement gives bit settings at 45° intervals through 360°.

When the screwdriver is used in a place where the clearance is close, the head is rolled a quarter round each time the screw is turned. Thus, a bit set at an angle that roughly corresponds with the new position of the screw slot, with the handle held in position for beginning a new stroke, is available. (K-620) L. Kasper, Philadelphia 20, Pa.



By allowing a small stream of cool water to run continuously over a cylinder of chlorine gas, the formation of ice on the cylinder will be prevented and the flow of gas into the vat will be maintained at a steady rate.

Water on Cylinder Aids Flow of Chlorine

In most bleacheries, trouble is encountered because of the tendency of frost and ice to form on chlorine cylinders after the cylinders are partly empty. This condition, of course, retards the flow of chlorine gas and often hinders the bleaching operation being conducted.

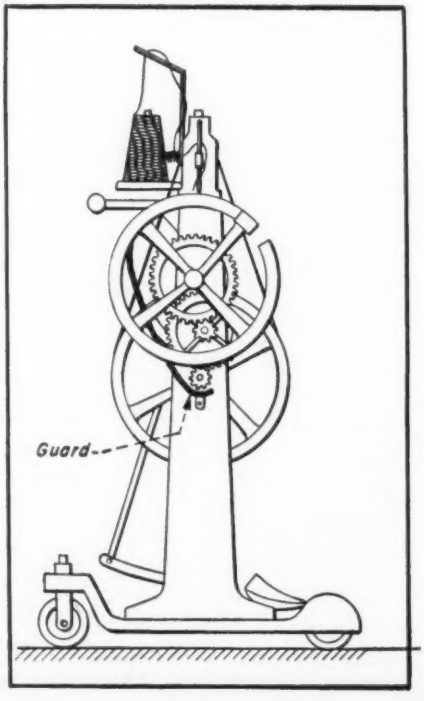
Various practices are followed to overcome this ice formation. In some plants, the flow of gas is increased by taking the cylinders out of operation, laying them down until the ice has melted, and setting them up again. Some bleachery men also follow the dangerous practice of pouring hot water on the cylinders or of setting them in tubs of hot water.

The method I use gives satisfactory results without danger. I mount an ordinary garden hose directly above the chlorine cylinder, connect it to the cold-water faucet, and allow a small stream of water to run over the cylinder. This water keeps the ice melted off the cylinder and permits the gas to flow freely until the cylinder is completely empty. No dangerous pressure is built up in the cylinder by using this method. *(K-626)* L. C. Huskey, South Boston, Va.

Cloth Guard Needed Over Sewing-Machine Gears

In our dye house and wet-finishing room we use a number of sewing machines. Damage to the cloth and loss of production result frequently because of the lack of guards over the gears on these machines. By watching the cloth very carefully while a seam is being made, the operator can keep the cloth clear of the gears; but such watchfulness takes its toll in efficiency.

A guard placed over the gears in the position indicated in this sketch will eliminate the trouble caused by these exposed gears. The guard can be made of sheet metal, cast iron, or steel. *(K-616)* Paul W. O'Niel, East Chelmsford, Mass.



A guard placed over the gears of a sewing machine will reduce damaged cloth and loss of the operator's time in the dye house and wet-finishing room.

8 WAYS TO CUT CARDING COSTS

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2. **Burrs and all Foreign Matter Completely Removed**
3. **No Shutdowns to Repair Loosened Filets**
   With Fullergript brushes the tension is constant — since the metal brush back is securely anchored to a metal core.
4. **Fewer Noils**
   Solid massed Fullergript Brushes push *all* long stable wool onto the pins.
5. **No Rolling and Pilling**
   Because of the dense loading of material.
6. **Brush Cylinder Stays True Much Longer**
   No wood cores to warp, crack, split or soak up oil. Nothing to cause cylinders to wear concave. No leather brush filets to stretch and loosen. Wool is transferred cleanly . . . maintenance drastically reduced.
7. **Longer Life and Less Cost**
   Because Fullergript Brushes are built with indestructible metal backs, with tremendous brush density, and they are mounted on permanent metal arbors.
8. **Better Quality Yarn**
   Fullergript handles wool properly, fibres do not roll, pill, or get thrown out in noils.

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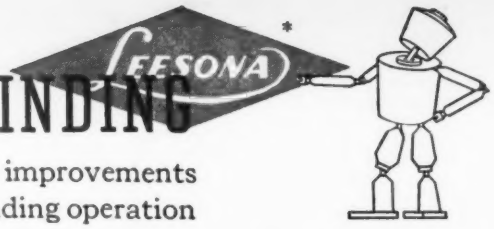

Information about winding designed to show improvements in winding equipment and new ideas in the winding operation

TAKE CARE OF YOUR TRAVERSES!
(Roto-Coner*)

The surface of the Rotary Traverse — due to meticulous care in manufacture — has a high degree of smoothness, which is necessary to the proper functioning of the device. It is important, therefore, to take all precautions to avoid nicking or scratching the surface.

On all machines, but particularly on those fitted with metal cone holders, every spindle should be checked to make sure that the cone holder spurs cannot come in contact with the Traverse. If they can and the cone holder is allowed to drop, the spurs may chip off the edge of a groove and cause faulty traversing. Any necessary adjustment can be made by means of the screw (A in Fig. 1) and check nut located in a lug on the upper edge of the frame cover, just under the cone holder arm.

The setting of this screw is carefully adjusted before leaving the factory, but should be checked in the mill. The correct setting is such that, with no paper cone on the cone holder, the spurs do not quite touch the Traverse when the cone holder is dropped. The lug (B) on the bearing cap is so located that if the arm is dropped with the cone holder in the doffing position it will not fall on the Traverse.

As an extra precaution, it is always wise to replace a wound package, immediately, with an empty container.

Injury to the Traverse can also result from carelessness in cutting away drum wraps. Instead of cutting into the yarn *towards* the roll, the knife should be slipped *under* the yarn and the cut made *away* from the roll.

AUTOMATIC TENSION OPENER
(No. 99 Winding Machine)

When soft bobbins or broken ends are encountered on the No. 99 Automatic Bobbin Winding Machine — or should the spindle fail to operate after the bunch has been wound — the Tension Openers should be checked to make sure they are operating properly.

The function of the Tension Opener is to release the tension on the yarn, allowing it to run freely during the period when the wound bobbin is being doffed and the new bobbin placed in winding position. When the Spindle Head is withdrawn to release the full bobbin, a solenoid (A) operates a lever (B) to lift the discs; when the Spindle Head returns to grip the new bobbin and the Starting Lever sets the bobbin in motion, the solenoid releases the discs and tension is applied again.

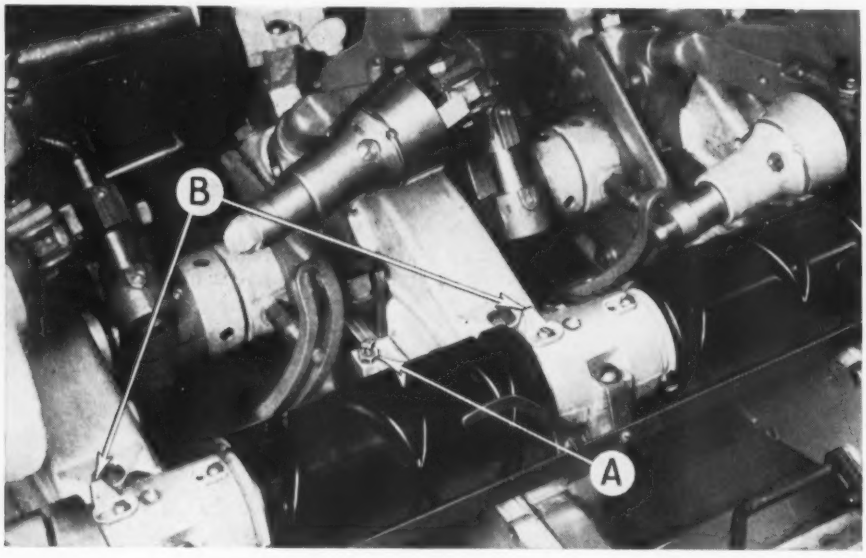

Fig. 1. Screw A permits adjustment of the limit to which Cone Holder can drop. Lugs B check fall.

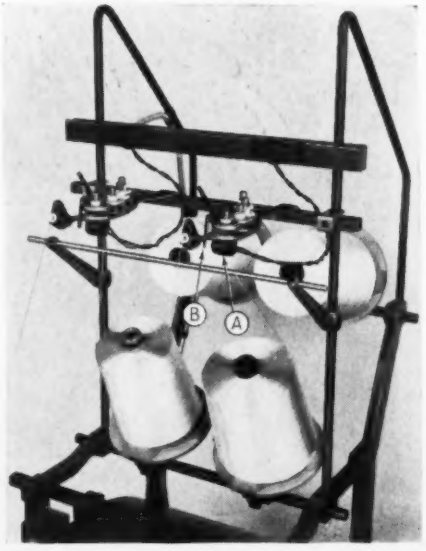

Fig. 2 No. 99 Automatic Tension Opener, showing solenoid (A) and opener (B).

The small bronze button on the lever should be in line with the plunger of the solenoid so that they will contact when the solenoid operates. If the button is too far from the plunger to be affected by the pull of the solenoid, the adjusting screw in the lever can be turned down to close the gap slightly, and the check nut tightened. If the button is too close, and the discs are not lifted enough, the lever can be bent upward slightly to correct the adjustment.

*Reg. U. S. Pat. Off. March, 1947

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Pete & Bill

Promotion Within the Mill

Should the overseers go all out for the assistant superintendent's job or would the well-managed plant fill that post from outside?

DID YOU HEAR THAT JACKSON IS LEAVING AS ASSISTANT TO THE SUPER!
YES, PETE, AND EVERYBODY IN THE PLANT IS PUTTING IN FOR THE JOB.
1
WHY NOT? AFTER ALL, THE BOSS WILL MAKE THE FINAL DECISION. LET HIM KNOW YOU'RE AMBITIOUS.
IT'D BE BETTER TO BRING IN AN OUTSIDER—LESS JEALOUSY.
2
AND KILL EVERYONE'S HOPE FOR PROMOTION?
THEN LET THE SUPER TAKE YOUNG OSCAR, THE TEXTILE-SCHOOL BOY. HE'S GOT A GOOD EDUCATION AND HAS WORKED IN NEARLY EVERY ROOM IN THE MILL.
3
AFTER ALL, BILL, IT'S ABILITY TO HANDLE THE HELP THAT COUNTS. THE NEW ASSISTANT SHOULD COME FROM ONE OF US SUPERVISORS
THAT WOULD BE ROBBING PETER TO PAY PAUL. HOW WOULD YOU SELECT AN ASSISTANT SUPERINTENDENT, READERS?
4

Letters From Readers

Overseer Must Always Be Available

"Office Hours for Overseers"
(Pete & Bill, Jan., 1947)

Dear Pete & Bill:

It is practically impossible for an overseer to allocate the same time day in and day out for general contacts. Perhaps at the time he is interviewing salesmen, he might be needed in the mill proper. He must meet people at convenient times when his presence can be spared from his department. Simply to set aside a specific daily schedule and abide by that will undoubtedly upset the applecart. He might possibly work with the second-hand and see that the latter holds the fort during his absence. However, a very short period of time should be spared by the overseer. Even second-hands may need advice when a difficult problem arises.

It might be wise to have the overseer receive personal requests, etc., after working hours. This would not interfere with production and yet would provide employees with answers to their problems. Upon the shoulders of the overseers rests responsibility for successful operation of their departments. Efficiency in operation means success in business. Inefficiency ruins a mill in the long run. (PB 301)

Office Hours Are Only a Dream

"Office Hours for Overseers"
(Pete & Bill, Jan., 1947)

Dear Pete & Bill:

It would be ideal if a supervisor could set up rigid hours during which he could take care of specific types of work. However, it has been my experience that, although such a schedule could be used for a guide, it could not be followed too exactly.

It is probable that the mill at which these men are supervisors is not in a

big city, and might possibly be off the beaten track. This would make it difficult for salesmen or similar representatives to get there on any specific day or at specific hours. And it is important that each mill supervisor be available to these men who so frequently bring good ideas from one mill to another.

On contacts with other mill foremen and the mill help, it should easily be possible to set up a time schedule and make allowances for any urgent occasions. If the boss is available only during certain hours, it has usually worked out well. And, when things come up unexpectedly, they can be taken care of as one would take care of any emergency. (PB 303)

Favors a Christmas Shut-Down

"Winter Vacations"
(Pete & Bill, Dec., 1946)

Dear Pete & Bill:

When Christmas Day falls at midweek, it would be wise to have the Christmas week handled as a vacation period for employees. Without question, there would be a letdown in production the first two days of the week as well as a considerable absentee list the last two days. Somehow or other, the majority of workers feel that whatever their actions are during working hours in Christmas week any excuses are justifiable in view of the season of the year. Management must consider these factors. There is no need for creating obstacles when a problem can easily be solved to the mutual advantage at all. As a matter of fact, it is a good period to do an overhauling job on the machinery. (PB 304)

Wants Christmas Week Off

"Winter Vacations"
(Pete & Bill, Dec., 1946)

Dear Pete & Bill:

Mill heads should give Christmas week off. The method, in my opinion, would see a noticeable decline in absenteeism, inasmuch as absenteeism is a nauseating barrier in any plant and should not be tolerated. Most mill men generally, I believe, look at absenteeism with less interest than they should. The strong arm of right should call a halt against the practice of "laying off" from work without a reasonable, conscientious excuse.

Christmas week off would, or should, speed up production later on when work at the plant is resumed. It would, also, indicate a right cooperative spirit between mill heads and employees, resulting in ultimate future benefit for the plant. (PB 302)

Books of Interest

Japan's Rayon Technology Described in Detail

THE RAYON AND SYNTHETIC FIBER INDUSTRY OF JAPAN, By H. Wickliffe Rose; Textile Research Institute, 10 East 40th St., New York, N. Y.; 340 pages; price $6.00.

About a year ago, a group of ten men composing the Textile Mission to Japan visited that country. Five of the members were Americans and five represented China, India, and Great Britain. The purpose of this mission was different from that of the textile missions sent to Germany since it was primarily constituted to learn Japan's productive capacity, and to discover what could be done to put that capacity back to work most advantageously. Out of the mission's work came a quantity of technical material which is of great interest and value.

H. Wickliffe Rose, of American Viscose Corp., was the only member of the mission assigned to the study of the rayon industry. In the book under review, he presents a comprehensive survey of Japan's rayon and synthetic fiber industry. Enough economic data is given in the first part of the book to indicate the magnitude and scope of the industry. This is followed by a presentation of fiber types, raw materials, costs, patents, etc. There were 20 rayon companies in Japan in 1939 and about 200 pages are devoted to detailed descriptions of these firms, their processes, and their present status. Of the 47 individual plants producing rayon in 1939, 16 are now in operable condition, and the remaining 31 are empty or converted to other industries.

Science of Color and Color Mixing

PRINCIPLES OF COLOR AND COLOR MIXING, by J. H. Bustanoby; McGraw-Hill Book Co., 330 W. 42nd St., New York 18, N. Y.; 130 pages, price $4.50.

Eleven full-page color plates demonstrate graphically for the reader the basic color relations and the evolution of the Bustanoby color system. The accompanying text is rich with data on color, from up-to-date scientific findings, through columns of practical information, to analysis of the esthetic value of color. After a survey of the pigments and mediums available, practical instructions on color mixing are given. Then follow 60 pages devoted to 242 tested formulas for obtaining standard and popular colors. Beyond this, Mr. Bustanoby gives useful chapters on color individuality in dress, interior decoration, etc., and on color sensation and psychology. The author analyzes briefly eleven color systems, including his own; and concludes with a dictionary of color terms.

The book is a useful guide for anyone concerned with the application of color. The author's system of color identification is based directly on formulas for mixing pigments so that there is an easy relationship between the identification of a color and ability to reproduce it.

A Birdseye View of Textile Industry

THE STANDARD HANDBOOK OF TEXTILES, by A. J. Hall, F.T.I.; D. Van Nostrand Co., 250 Fourth Ave., New York; 296 pages; price $5.00.

The author has written other books covering such subjects as cotton cellulose, dyes, and textile finishing. He is a member of many British scientific societies related to textiles and is active as a consulting chemist. He is well qualified, therefore, to prepare his latest contribution to textile literature which is in effect a birdseye view of the textile industry. In this book, Mr. Hall describes the basic fibers and their properties, the conversion of these fibers into yarns and fabrics, the methods and machinery for finishing, color and finish from viewpoint of manufacturer and user, care of fabrics, and simple fiber-identification tests.

Mr. Hall, in a special preface to the American edition of his book, expresses his belief that the textile industries of both Great Britain and America depend on the availability of a large labor force having not only common sense but also a special textile sense based on a knowledge of textile fibers and their processing. This textile sense, he argues can be assisted by textile literature. His book is, therefore, aimed at an audience of textile workers who may wish to broaden their knowledge of the field or toward persons who handle or sell textiles and may wish to understand how they are made.

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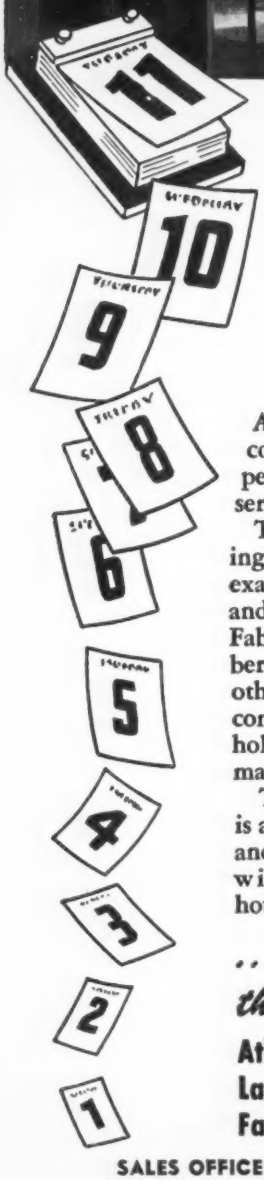

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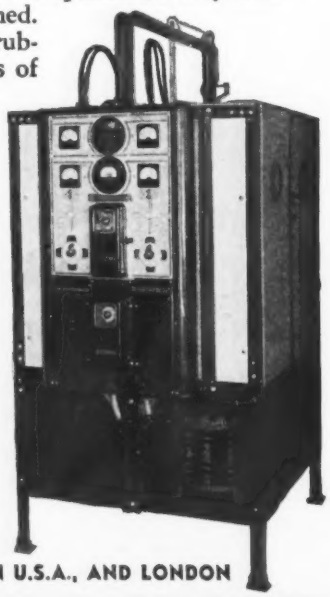

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Round Table

FOR EXCHANGE OF IDEAS

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Knitted Carpet Fabrics Require Additional Body

The automatic production of knitted carpets [T. W., Aug., 1946, p. 150] has been an accomplished fact for many years, although the practice did not meet with any spectacular success, and so far as I am aware has been discontinued.

Carpets were produced by hand knitting and pegged centuries ago. These carpets were of great width and designed in large patterns of considerable beauty. Owing to the coarse gage of the carpets and the cheapness of hand labor at that time, production was fairly speedy and inexpensive.

The first successful carpet-knitting machine was a Raschel type of machine, and very interesting knitted carpets were produced. I am not sure that this machine can be repeated today with the old patterns, jigs, etc. In any case, the machine would be comparatively expensive and a long delivery date would be necessary.

Warp knitting is formed by producing chains of loops longitudinally down the fabric, and the threads are wound on beams as in weaving. Each needle draws its thread from its own yarn guide and may be fitted with more than one guide to each needle, in which

HAYES *light metal* *"know how"* NOW CENTERS ON *warp beams* AND *bobbins*

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case separate beams and separate guide bars may be required. The loops are formed by lapping—that is, the guides proceed between the needles, shog one needle space sideways, and return to their original positions, leaving threads lapped into the hooks of the needles. The needles then draw these loops through the old loops, which are then cast off, leaving the new loops on the stems of the needles ready for the next course.

The wales are joined together by the racking of the guide bars to form a continuous fabric. A normal fleecy loop is formed by using two guide bars, one of which forms the base by lapping around different needles. The other bar laps continuously around the same needles and points, thus forming a normal knitted loop and a long loop. Such material is known as "fleecy." To produce plush, knives are used instead of points; and the fleecy loop is cut after it has been firmly knitted in.

For carpet production, various modifications have to be made. More body is needed in the fabric, and the widthwise elasticity has to be reduced. To give the required body, extra yarn guides may be used and a straight filling thread inserted. The straight filling thread does not get into the needle hooks, and thus the lateral elasticity is eliminated and a good selvage is made. A very coarse thread can be used to give additional weight to the fabric.

Experiments have also been made on the straight-bar, bearded-needle, filling-knitting machine; and again a good-selvage material is produced. In this type of knitting, chains of loops are produced sideways; and yarn can be knitted directly from bobbins or cones without the preparation of beams. The yarn is carried across the machine by guides, and loops are sunk around the needles by means of sinkers. The sinkers may be made in a special shape; and if two threads are fed in a fixed relative position, different lengths of loops can be drawn. The longest loop normally remains a fleecy loop on the back of the material; but if the fabric is reversed, a coarse jute yarn is used for the short loop and a suitable yarn is used for the long loop. In this manner, an excellent floor covering is produced.

If a circular knitting machine is used, a high production rate and a considerable saving in floor space can be obtained. If the latch- or bearded-needle type can be obtained, huge quantities (up to 2,500 yd. per 40-hr. week) can be produced.

The simple mechanical features do not present any significant problems. A 4-cut, 12-in. circular latch-needle

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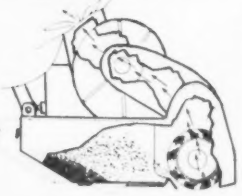

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machine, fitted for plush and laid-in work, can be used very well for producing floor coverings. The acute problem is that of obtaining the exact gage, type of needle, material, and the correct production techniques for producing a cloth that will compete successfully and permanently with the excellent carpet-weaving machinery already in successful operation. *(R-326)*

Impartial Attitude Is Necessary for Foremen

Treating men as he does machines is often spoken of as a fault in a foreman. Carried too far, so that the human relationship is lost, such an attitude has little to commend it; but within reasonable limits it has merits too often overlooked.

Treating men as machines can actually mean many things. In some instances, it would have merit because it would clear the air of all prejudices and personal angles. Then, with a solid foundation on which to build more intelligently, workers could gain by the new treatment of machine impartiality, tempered with human understanding. *(R-330)*

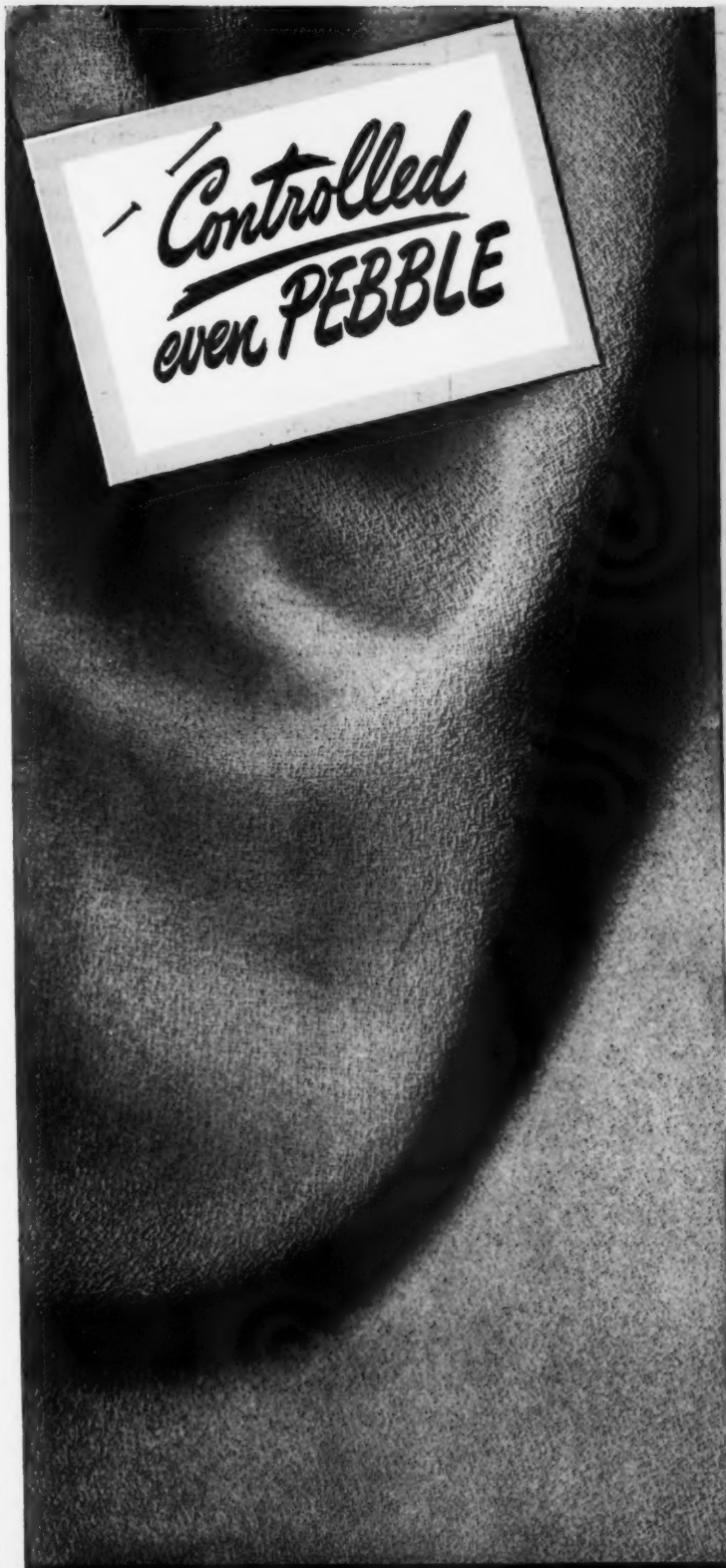
Mill Training Courses Are Free to Veterans

Mills are quite active in making study courses, particularly courses in foremanship, available to their employees. Half the expenses of these courses is paid by the mill and half by the employee, but in most instances the mill refunds the employee's half when the course has been completed.

One point often overlooked—and seldom brought to the attention of the mill or the employee—is the fact that if the employee is an ex-service man he is entitled to the course without fee. The only requirement is that the course and the school from which it is taken be approved by the local Veterans' Administration.

The following case will give an idea as to how much mills are spending needlessly for these courses. In one mill organization in South Carolina, 58 employees signed up for a course. Of this number, 25 were ex-service men. The course cost between $48 and $51 for each student. The mill, therefore, is paying between $1,200 and $1,275 for courses that should be free to its employees.

The representatives of schools approved by the Veterans' Administration know, of course, that they should not collect from the mills for these courses for ex-service men. However,



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when they do collect from the mills, they receive their commissions immediately; whereas, if they were to advise the mills to let the Veterans' Administration pay for the courses, they would have to wait weeks, or even months, for their commissions. *(R-329)*

Pairer's Rate of Pay Must Include All Styles

After a trial period with temporary piece rates for our new product, nylon hose in both seam-free and full-fashioned styles, our pairers in the finishing department complained that the rates were too low. They believed that they could not make their "average" earnings. When they were asked how much their average earnings were, they were unable to say because there were so many different styles and rates. All of the group were experienced operatives, and all of the work was divided among them as equally as possible, so that there was no dissatisfaction in regard to the distribution of the work.

Since the ten pairer operatives were able to pair the full production of the mill, we made a study of the average daily production of all of the styles, as shown in the accompanying table. The steps included in making this table were to: (1) compute the percentage of daily production, and use that percentage to obtain the hourly production of each operative in each

Doz. pairs daily	% of total production	Production per operator per hr.	Piece rate (temporary)	Av. hourly earnings
HALF HOSE				
84 (needle)				
270	18.94	3.375 @ .0258		.08708
108 (needle)				
270	18.94	3.375 @ .0263		.08876
176 (needle) White				
260	18.25	3.250 @ .0398		.12935
176 (needle) Black				
237	16.62	2.9625 @ .0410		.12146
HOSE				
36 (gage)				
60	4.21	.750 @ .0421		.03158
39 (gage)				
76	5.33	.950 @ .0460		.04370
42 (gage) Rayon				
57	3.99	.7125 @ .0505		.03598
Nylon				
196	13.74	2.450 @ .0808		.19796
1426	100.00	17.825		.73587
17.825 x 80 hr. (10 operatives @ 8 hr. each)				
1,426. doz. pr. av. daily production				

A hosiery knitting mill, knitting several styles of hose and half hose, uses this table for figuring its basic rates of pay for the pairer operators .

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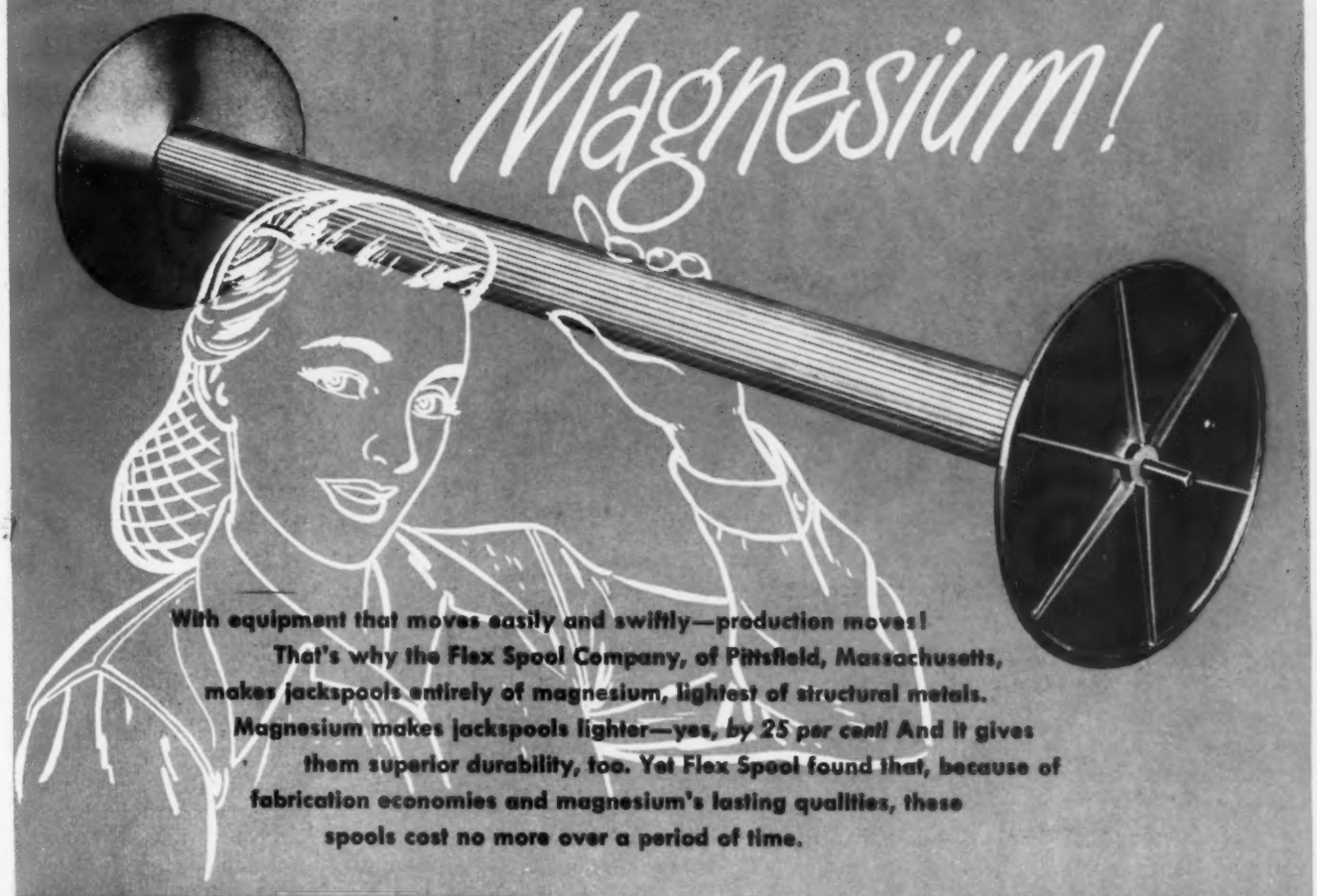
Magnesium!



With equipment that moves easily and swiftly—production moves! That's why the Flex Spool Company, of Pittsfield, Massachusetts, makes jackspools entirely of magnesium, lightest of structural metals. Magnesium makes jackspools lighter—yes, *by 25 per cent!* And it gives them superior durability, too. Yet Flex Spool found that, because of fabrication economies and magnesium's lasting qualities, these spools cost no more over a period of time.

EASY TO PRODUCE . . . EASIER TO HANDLE

Lightweight magnesium is extruded as fluted tubing with 1/8" wall to form barrel in a single operation. With metal previously used, fluting was a costly additional process. Magnesium barrel is rigid and strong.

Finished jackspool is sound, serviceable —and light. It is easily moved from one machine to another. Such lightness also means low shipping costs. Magnesium die cast heads eliminate fittings, and are strong and sturdy.

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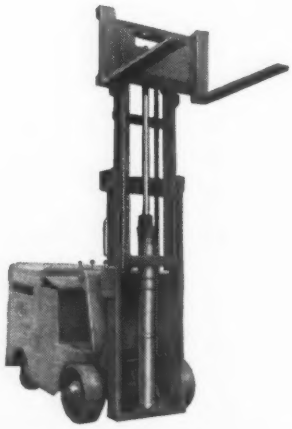

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of the various styles; (2) multiply this average hourly production by the temporary rate on the nylon and the permanent rates on the other styles to obtain the average hourly earnings on each style; and (3) add these hourly averages. The result was 73.587¢.

Comparison of the foregoing rate with the rate obtained from a time study in which the usual allowance of 15% for rest periods was allowed enabled us to set a permanent rate for the work. This rate was quite close to the temporary piece rate.

Where another number of operatives, such as nine or eleven would be needed to do the same work, 73.587¢ divided by nine or eleven will show the average hourly earning, if no change is made in the rates. *(R-327)*

Direction of Yarn Twist Affects Warp Twill Line

Various factors that affect warp twill lines are frequently mentioned in articles, but the influence of the direction of twist is usually ignored. I have had a considerable amount of experience with twills, and I never lose sight of the fact that much can be done to a warp twill line by the proper use of the direction of twist.

It is sometimes necessary to use a filling yarn twisted in the same direction as the warp yarn in order to obtain a very sharp twill line. If a more subdued line is desired, the effect can be obtained by using warp and filling yarns twisted in opposite directions, as Z twist filling and S twist warp.

The reason for the difference between the two twill lines is quite simple. If Z-twist filling crosses Z-twist warp, the surfaces of the two yarns will ride each other instead of blending into each other. Conversely, if Z-twist filling crosses S-twist warp, the surfaces of the two yarns receive each other sympathetically.

The effect is similar to that obtained when two screws are crossed at right angles. If the screws are threaded in different directions, the spirals tend to fit each other. If the screws are threaded in opposite directions, the spirals show no tendency to blend with each other.

Sharpness of the twill line can be emphasized further by the use of an unbalanced fabric that contains more warp ends than filling ends per inch. The nearer this unbalanced construction approaches that of gabardine, the sharper the warp twill line will be.

Another way in which to emphasize the twill line, of course, is to insert more twist in the yarn. *(R-328)*

The Quality of Boger and Crawford knitting yarn is guaranteed—the highest tribute we can pay it.
Signed . . . . . .
Fredericka Boger

DOES YOUR KNITTING YARN HAVE *Vitamin* Q ?

Vitamin "Q" is *Quality*. And, as you know, good yarn *must* have Quality. With Boger and Crawford, Quality in knitting yarn is foremost — even above its production cost to us!

To be sure, the cost of making this yarn is high. Research — testing — production — all are thorough and expensive — but worthwhile! Because out of it all you get a *better* knitting yarn steeped with Quality. Yes, Vitamin "Q" is essential in knitting yarn!

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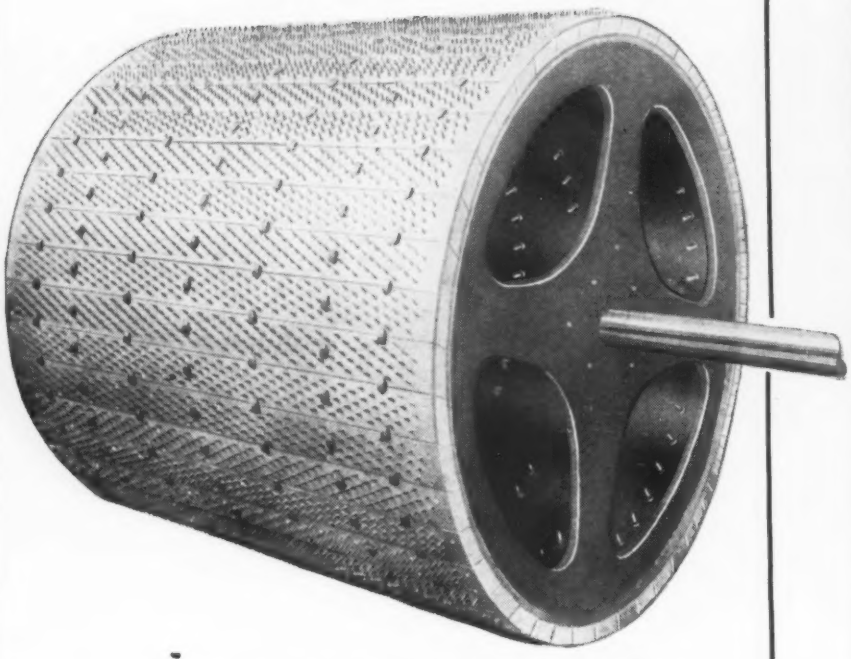

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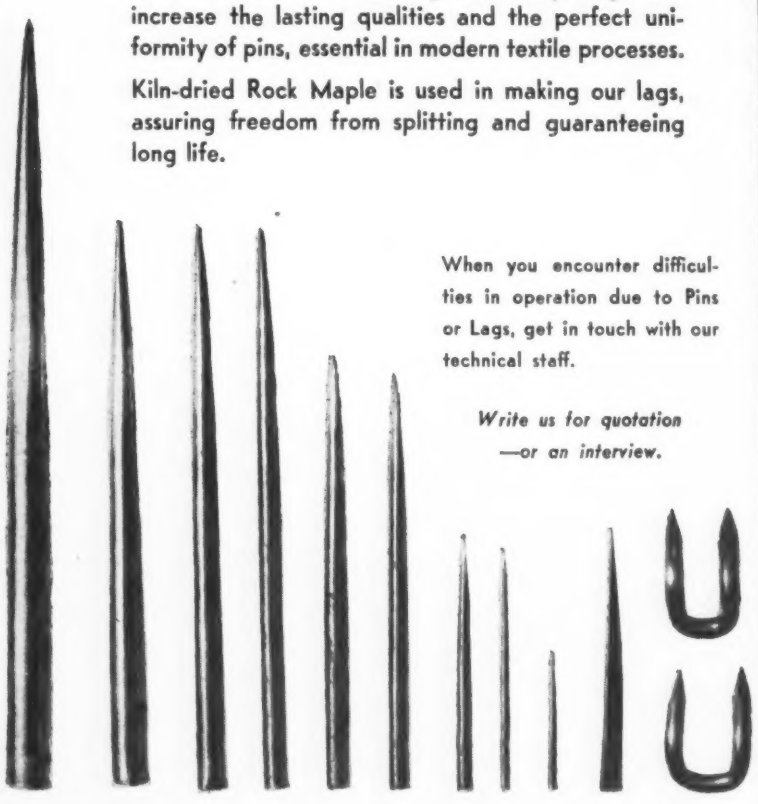

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Questions and Answers

Efficiency Determines Weaver's Loom Assignment

Technical Editor:

We are weaving a cotton fabric of the following description: width, 58½ in.; warp, 24/2 combed-peeler cotton, 50 ends per in., filling, 15/1 cotton, 38 picks per in. The filling is yarn dyed. We are weaving four colors, so that we require four shuttles. How many looms should a weaver run on this construction of goods, and at about what speed should the looms operate? (9158)

The number of looms a weaver can run depends largely upon a number of conditions, such as the kind and mechanical condition of the looms, the construction of the fabric, and the quality of the warp and filling. These factors will determine the average number of warp stops, which answers the question of how many looms an operator can run.

If the fabric is to be woven on a Crompton & Knowles C6 4x1 automatic bobbin-changing loom in good condition, a weaver could be expected to take care of twelve looms. These looms are designed for high-speed operation—160 to 170 picks per minute.

It should be remembered that increasing the speed of the loom does not always increase loom production. The best method for determining the speed and number of looms an operator can run is to make a careful study of loom stops and check the cost of weave-room supplies.

Saxon Inch Is Used For Some Machine Gages

Technical Editor:

In our mill, we operate a number of German-made knitting machines. Certain gages on these machines are based on the Saxon inch. Can you tell me what a Saxon inch is in terms of the English inch? (9160)

In the eighteenth and nineteenth centuries, there were between 100 and 150 different inches in use in Central

teaching water new tricks

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MANUFACTURERS' BULLETINS

***READERS** may secure copies of literature reviewed on these pages by using the post cards below. Fill out **COMPLETELY** one coupon for each piece wanted.*

Free FOR THE ASKING

1. **Pump governors** for control of reciprocating, turbine, and motor-driven pumps are described in a 16-page illustrated booklet published by Leslie Co. The booklet gives engineering, operating, and maintenance data; large cross-sectional color views illustrate construction details of brass, bronze, and steel governors; capacity tables, specifications, installation, and operation data are given.

2. **A selector guide** designed to answer vital questions about fire extinguishers has been published by Randolph Laboratories, Inc. The guide condenses 222 fire facts in a handy vest-pocket size.

3. **High-speed coning and warping** by the Universal system is described in a booklet published by Universal Winding Co. The booklet illustrates operation and maintenance of both winders and warpers, gives an outline of speeds and capacities that may be expected, and describes ways in which quality of yarn can be improved.

4. **Tachometers** of the portable and fixed-mounted types are described in a 16-page catalog published by Jones Motrola Corp. The catalog describes and illustrates different tachometers for particular applications, lists ranges and driving ratios and other pertinent information, and the accessories required for many standard and special driving arrangements.

5. **Anti-friction bearings** of ball radial, ball reciprocating, radial roller, and thrust types are catalogued in a 168-page manual published by The Torrington Co. The manual completes a series of three volumes published by the company to provide full engineering data on bearings and an authoritative guide in the proper selection of suitable anti-friction bearings for all types of applications.

6. **"Technical Advisor,"** is the title of a new monthly technical paper published by Reynolds Metals Co.

7. **Deaerating heaters** and vacuum deaerators are described in a bulletin published by Liquid Conditioning Corp. The bulletin outlines the applications and principles of operation of these units and explains the features of their designs.

8. **An adsorption fractionator** designed for light hydrocarbon analysis is described in Bulletin No. 205 published by Burrell Technical Supply Co. A discussion of the theory of adsorption fractionation is given; utilization and operation of the equipment are described.

9. **"Materials Handling Analysis Guide"** is the title of a pamphlet published by Towmotor Corp. The pamphlet contains data on improved materials handling through the use of fork trucks, lift trucks, and industrial tractors.

10. **Dry-cleaned floors** is the subject of an 8-page booklet published by G. H. Tennant Co. A panel of six photographs shows various steps in the dry-cleaning process; the three steps of restoring, sealing, and dry cleaning of floors are explained.

11. **Close-coupled centrifugal pumps** designed for general service, with capacities from 10 to 1000 g.p.m., are described in a booklet which has been published by H. K. Porter Co., Inc. Capacity tables are given to aid in the selection of pumps for specific applications, dimensions of the various types and sizes of pumps are given, and construction features of the pumps are described.

12. **"Textile Topics"** consisting of reprints of the texts of broadcasts by a number of distinguished guest experts talking on textile subjects, has been published by J. W. Valentine Co., Inc. The material covers thirteen topics by nine experts.

13. **Electric stop motions for knitting machines** are described and illustrated in a booklet published by The Crawford Mfg. Co., Inc. Features and advantages of the Crawford stop motion are described; many photographs illustrate the application of the stop motion to circular-knitting machines of various types.

14. **Industrial opportunities** in Puerto Rico are described in a 48-page brochure published by the Puerto Rico Development Commission. Nineteen points of industrial importance are discussed, including wage costs, reserves of manpower, availability of markets, and raw materials.

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330 West 42nd St.
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15. High-draft spinning system of the Casablancas type, its operation and advantages, are described in an 8-page bulletin published by H & B American Machine Co. Constructions of various parts of the system are described and illustrated, and order numbers of all parts required are provided.

16. Unitized freight shipments which can be achieved by applying adhesive to packing cases as they are placed in freight cars is the subject of Bulletin No. 506 published by the Association of American Railroads. The bulletin describes methods of applying the high-shear-strength, low-tensile-strength adhesive to prevent shifting of cases in transit and illustrates methods of packing for best results.

17. Storage of microfilms, sheet films, and prints is the subject of a pamphlet published by Eastman Kodak Co. Intended to serve as a guide to those who desire to store safety-film base and paper-base materials only, the pamphlet discusses the protection required, classification of records, fire protection, short-term storage, archival storage, moderate-term storage, preparation for storage, and other factors important to the prevention of deterioration.

18. Temperature regulators and controllers are described and illustrated in Bulletin No. 464 issued by Leslie Co. Engineering, operating, and maintenance data are given; sizing and capacity tables to guide the selection of the proper regulator or controller for specific applications are provided; instructions for installing, operating, dismantling, cleaning, and assembling are given.

19. Hand-type speed indicators in ranges from 0 to 100,000 r.p.m. are described and illustrated in Bulletin No. 735 published by Herman H. Sticht Co.

20. Pigment-color printing is discussed in Bulletin P-1 issued by Interchemical Corp. Included is information on preparation of printing emulsions, properties of solvents, storage and handling of colors and clears, printing procedures, drying and curing, fastness properties, and other details on printing with pigmented emulsions of the water-in-oil type.

21. Permanent-magnet separators for use in eliminating tramp iron and steel particles and pieces from stock during passage through processing machinery are illustrated in the 4-page folder issued by Homer Mfg. Co., Inc. Drawings show application data on permanent-magnet separators installed in feed tables, openers, pickers, and air lines.

22. A fiber-sample dryer suitable for drying four individual samples simultaneously and using forced circulation of heated air is described and illustrated in Bulletin No. 24 issued by Baird Associates. Developed primarily as a wool dryer, it is said to be suitable for drying all textile fibers.

23. Packaged power units in horsepowers up to 20 and consisting of electric motors driving hydraulic couplings are described in Book No. 2085 published by Link-Belt Co. Photographs, charts, horsepower and torque ratings, weights, and dimensions necessary for determining how the new drive will fit into a specific layout are given.

24. Rugged-duty-service light bulbs are described in Bulletin No. 103, published by Lustra Corp. of America. Four types having such characteristics as all-flexible construction, flexible-filament mounts, shock-absorbing filament supports, and other rugged-duty features are described.

25. "Organic Nitrogen Compounds" is the title of a 31-page booklet, Form 4770, published by Carbide and Carbon Chemicals Corp. The booklet presents the properties, specifications, and uses of alkyl amines, alkylene amines, alkanolamines, and acetoacetarylamides.

26. Activated-carbon air-recovery panels are described and complete data on the design, construction, function, and application of these units are given in Bulletin 106-A issued by W. B. Connor Engineering Corp. Performance chart provides a simple and concise tabulation of the data necessary for proper panel selection.

27. Expansible fire-hose reel for permanent mounting on hydrants and other outlets and designed to prevent tangling or air binding of hose is described in a folder published by American Fire Fighters, Inc.

28. Speed and power requirements of winding machines are given in tabular form in No. 61 of "Getting the Most from Winding," published by Universal Winding Co. Also in the folder is an illustrated description of the proper positioning of yarn on bobbins when using No. 90 winders.

29. Positive-displacement rotary pumps for handling oil, gas, and water at the rate of 2.5 g.p.m. and at pressures of 1,000 to 3,500 lb. per sq. in. are described in a 4-page folder published by the Pump Division of Ellipse Corp. Vibrationless, nonpulsating, and non-reciprocating characteristics of the pump are described; charts are given to illustrate the pump performance of high output and high vacuum.

30. A new line of ball bearings, pillow blocks, hangar bearings, flanged units, take-up units, and cylindrical units, as well as steel-frame ball-bearing take-ups, are described in Bulletin A-120 issued by Dodge Mfg. Corp. The bulletin gives pertinent engineering information on the units covered, and selection tables provide a convenient means for selecting the right bearing for any application within the size and load range of the line.

TO GET MORE INFORMATION

1. Fill out completely *one space* (name, title, company, address, and item number) for *each* bulletin wanted. Put only one number in each square.

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TEXTILE WORLD, New York 18, N. Y.

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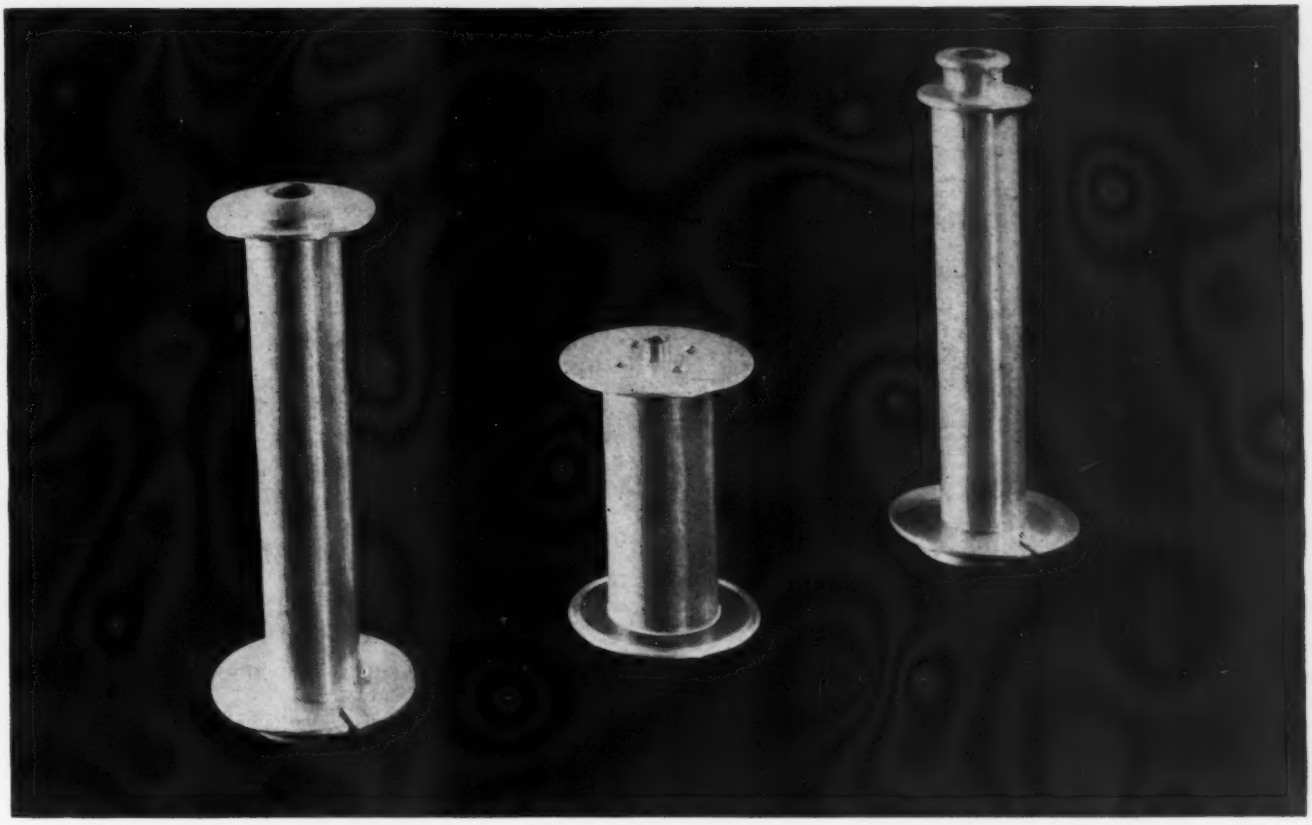
Special Purpose Bobbins



Aluminum Woosted Magazine Type Twister

Aluminum Nylon Take-Up Shift

Aluminum Nylon Steaming Twister Bobbin

What Are Special Purpose Bobbins?

They are bobbins designed and engineered *to do a particular job* from the standpoint of the yarn characteristics and from the standpoint of all the processing requirements. Three examples of such bobbins are illustrated above.

These bobbins are engineered to meet every requirement of the yarn process, down to continuous (Pat'd Magazine feature) overend delivery after steaming.

Yarn characteristics and yarn pressures must be provided for in the construction materials of the bobbins.

Our experience, manufacturing facilities, and engineering knowledge is your assurance of the highest degree of efficient yarn processing.

The three bobbins shown here are constructed of aluminum, and for the jobs required have proved to be the best possible construction material heretofore used.

Let us discuss with you any of your special purpose Bobbin requirements.

W. S. TAYLOR, INC., 52 Vanderbilt Avenue, New York 17, N. Y.

NEW YORK SALES AGENT AND TECHNICAL SERVICE

R. B. DORMAN—1000 Peachtree St., Atlanta, Ga.

FRANK STEERE—1620 Broad St., Edgewood, Providence, R. I.

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LESTERSHIRE SPOOL & MFG. CO.

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"SENSATIONAL!" was the word . . .

PUL-PAC IN POSITION TO TAKE LOAD

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2 GRIPPER JAWS TAKE HOLD OF BOARD

3 PULLING THE LOAD ONTO CARRIER PLATE

4 LOAD IN POSITION FOR TRANSPORTING

5 LOAD IN FREIGHT CAR FOR SHIPMENT

. . . used by Top-Management men to describe the new "PUL-PAC" method introduced at the National Material Handling Exposition by CLARK TRUCTRACTOR.

Why? . . BECAUSE IT . .

- √ employs an inexpensive load base of paper, fiberboard or similar material
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Division of CLARK EQUIPMENT COMPANY
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Prices on CLARK products will not be advanced in excess of increased costs.

Europe. One of these inches was the Saxon inch, known as the *zoll*. It is equivalent to 0.9291 English inch, according to a book printed in 1869 now in the possession of the Bureau of Standards, Washington, D. C.

Germany changed to the metric system some years ago, and the Saxon inch is not in general use now. However, it has been retained in certain sections of Germany, and it is quite possible that it is still being used in the Dresden section and is being applied to certain machine parts, particularly to repair parts for machines designed before the metric system was adopted.

Caustic-Soda Treatment Reduces Barré in Rayon

Technical Editor:

The two inclosed samples of ¼-in. ribbon are made of 100-den. viscose-rayon warp and 150-den. rayon filling. One sample is raw, and the other was piece-dyed.

You will note that the colored sample was not dyed evenly; dark bars are evident in it. There seem to be no such variations in the yarn in the undyed state or after it has been dyed a light shade. The bars appear only in dark shades, such as royal blue, French blue, emerald, etc. Can you account for the presence of the bars? (9156)

The dyeing difficulty apparently was caused by a condition known as barré —a term applied to signify the results of a variable affinity for dye. Rayon produced by two different manufacturers, or even two different batches produced by the same manufacturer, sometimes varies in its affinity for dyestuffs. Thus, if filling yarns are mixed in the weaving operation, dye bars will show up. The heavier the shade, the more pronounced these bars will be.

Much progress toward uniform affinity has been made in recent years, and barré is not nearly so common as it was a few years ago.

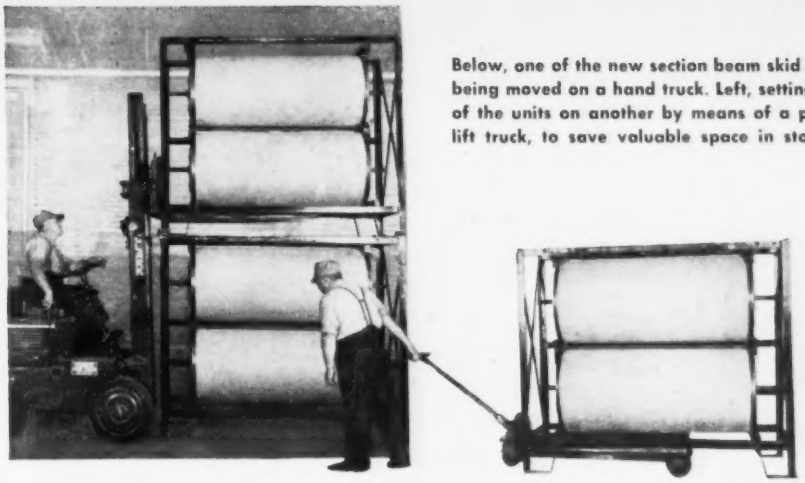
A sample of the dyed ribbon that showed this condition was stripped with a solution containing approximately 0.25% caustic soda and 0.5% sodium hydrosulphite at 160° F. for 10 min. A sample of the undyed ribbon was given a light boil-off with a synthetic detergent for the same length of time. Both pieces were then dyed in the same bath with direct colors to approximately the same depth and cast of shade that existed in the original dyed ribbon.

The gray ribbon that had received no caustic treatment showed barré very noticeably, while the piece that had been stripped with the caustic solution showed the condition only slightly.

Some causticizing of rayon is often

Rayon Reports

New Section-Beam Skid Racks Aid American Viscose Customers



Below, one of the new section beam skid racks being moved on a hand truck. Left, setting one of the units on another by means of a power lift truck, to save valuable space in storage.

American Viscose is now making available a specially designed container of the skidrack type that greatly simplifies the handling, storing and shipping of rayon yarn on section beams. Replacing the bulky wooden boxes formerly used, the rack is of compact, all steel frame construction.

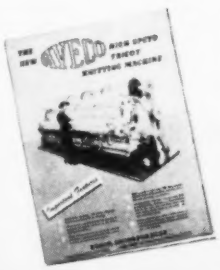
Each rack is designed to hold two section beams. The over-all dimensions are 6′5″ x 2′6″ x 6′. Section beams are securely locked in place by the simple movement of convenient chocks. The racks may be stacked and are easily picked up and moved with either hand or power trucks. Representatives of American Viscose are giving complete details to customers on ways of getting utmost shipping and stockroom efficiency with the new containers.

Special Chemical Research Division for Lubricants, Sizes and Finishes

Announcement was made recently of the establishment of the Textile Chemicals Division within the Textile Research Department of American Viscose, Marcus Hook, Pa.

The division's work consists of developing new lubricants, sizes and finishes for rayon and other fibers, and new methods of application of these materials. In addition, Avconit, Avcosew and Avcodisk, will be serviced by the division's staff.

Folder Gives Full Description of Latest AVECO Knitting Machine



An illustrated folder detailing the advanced design features of the new high speed knitting machine developed by Aveco, Inc., subsidiary of American Viscose, has just been released. Already operating in a large number of mills, the machines are setting new high standards for performance and for low cost fabric construction. Copies of the descriptive folder may be obtained simply by writing to the Aveco Sales Division of American Viscose Corporation, 350 Fifth Avenue, New York 1, N.Y.

RAYON 20 YEARS AGO

A monument in memory of Count Chardonnet, key figure in the invention of rayon, has just been authorized by the City Council of Lyons, France.

Retail sales of women's rayon underwear increased 45% last year, the N.R.D.G.A. disclosed recently.

Rayon made from cornstalks is the promise offered by the developers of a new rayon pulp process.

MAKE USE OF 4-PLY SERVICE

To encourage continued improvement in rayon fabrics, American Viscose Corporation conducts research and offers technical service in these fields:

1 FIBER RESEARCH
2 FABRIC DESIGN
3 FABRIC PRODUCTION
4 FABRIC FINISHING

AMERICAN VISCOSE CORPORATION

America's largest producer of rayon

Offices: 350 Fifth Avenue, New York 1, N.Y.; Charlotte, N. C.; Cleveland, Ohio; Philadelphia, Pa.; Providence, R. I.; Washington, D. C.; Wilmington, Del.

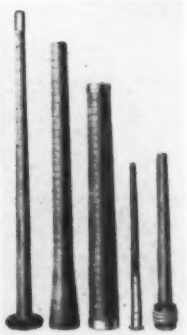
Plants at: Marcus Hook, Pa.; Roanoke, Va.; Lewistown, Pa.; Nitro, W. Va.; Parkersburg, W. Va.; Meadville, Pa.; Front Royal, Va.

A-P-T YARN CARRIERS

From Material to Design -
Built to Industry Requirements

"Goodbye Mr. Chips"

IF YOU HAVE ENCOUNTERED damaged fibres in your mill due to chipped or splintered bobbins, change to A.P.T. Yarn Carriers now. The tubes, made of laminated paper, impregnated for moisture resistance and hardened by baking, NEVER chip or splinter. You'll welcome the smooth performance of A.P.T. Yarn Carriers once you try them and you'll be glad to say "Goodbye, Mr. Chips" to old-fashioned bobbins.



The precise construction of A.P.T. Yarn Carriers, from their "built-around-the-spindle" beginning, means perfect balance on the spindle, perfect spindle cling, resistance to distortion, and free, but controlled delivery. The same tough materials that eliminate chipping and splinters make these tubes highly resistant to splitting.

Other industry requirements for the perfect yarn carrier which A.P.T. Products satisfy are: Light weight, great strength, and low ultimate cost.

Give these superior carriers a chance to improve the quality of your production and to reduce costs. They are adaptable to the spinning, twisting or weaving of all types of fibres.

AMERICAN PAPER TUBE COMPANY

ESTABLISHED 1898 • WOONSOCKET, RHODE ISLAND

SALES OFFICES—GREENVILLE, S. C., NEW YORK, CHICAGO

practiced on piece goods to overcome the different dyeing indices of various batches of yarns. It would appear, therefore, that the trouble lies in the yarn itself, and not in your dyeing procedure.

If you would strip and redye any lots that show this condition, the redyed material very likely would show a much more level shade than it did after the original dyeing.

It would also be advisable to treat any doubtful lots that you may have in the undyed state with the 0.25% to 0.5% caustic-soda solution mentioned at 150 to 160° F. for several minutes. This bath should then be dumped and the material washed and neutralized with a small amount of acetic acid. The ribbon should be washed again before entering the dye.

Such a treatment will aid considerably in leveling the dyeing and minimizing the barré condition.

Diversified Industry Supports a Rayon Plant

Technical Editor:

We are studying the feasibility of local manufacture of rayon fiber for consumption by the textile market in the eleven Western states, with consideration being given to expansion of the textile industry through 1965. Since wood pulp is a natural resource of the Pacific Northwest and cheap power from government transmission lines is available, the establishment of rayon-manufacturing plants appears to be a logical development.

We are therefore interested in learning what share the eleven Western states may have in the expansion plans in the textile industry, particularly the expansion of plants which will use rayon. (9159)

Wood pulp is the source of cellulose for the manufacture of rayon yarn, but commercial pulp has to be bleached before it is suitable for the rayon-manufacturing process. The source of pulp has not proved to be the controlling factor in the location of rayon plants for several reasons.

The labor supply and the market for rayon yarns are among the principal controlling factors in the location of a rayon-fiber plant. The manufacture of rayon fiber is a chemical process. Therefore, a supply of soft water and a supply of power at reasonable rates are both important; but these can be found in many localities.

The Pacific Coast market for rayon, at present, requires woven products; and there are only a few small rayon-weaving plants in this region. No single rayon-yarn plant can supply the yarn required for a number of rayon-weaving plants; the woven product is made from

DEVELOP YOUR COLORS WITH U. S. P. SOLVAY SODIUM NITRITE

The secret of quality azo dyes

SOLVAY

SODIUM NITRITE (U. S. P.)

To insure quality azo dyes, leading textile manufacturers specify U.S.P. grade SOLVAY Sodium Nitrite to develop their colors.

SOLVAY SALES CORPORATION

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40 Rector Street **New York 6, N. Y.**

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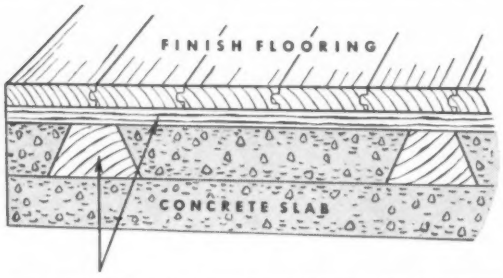
Speaking of floors

WE LIKE TO BE IN THE MIDDLE



WOLMANIZED LUMBER* SUBFLOORS AND SLEEPERS

Here's the spot—in the middle—where Wolmanized Lumber belongs. Untreated lumber is food for fungus—moisture makes it grow. On Wolmanized Lumber decay fungus cannot grow—the Wolman Salts* preservative is fatal to it. Recommend Wolmanized Lumber generously for all subfloor and substructures . . . and you'll add years to the service life of your customer's buildings.

PRESSURE TREATMENT . . .
DRIVES PROTECTION DEEP

You can't just brush it on, you can't dunk it on . . . you've got to drive it into the fibers of the wood to get real protection. At American Lumber & Treating Company, we do it under great pressure in steel retorts. The protection is there for keeps. Sell these facts to your customers.

*Registered trademarks

1672 McCORMICK BUILDING, CHICAGO 4, ILLINOIS

various sizes and qualities of yarn. Moreover, after weaving, there are various finishing operations that require facilities not yet established on the Pacific Coast.

The consumption of rayon fabrics in the Mountain and Pacific states is sufficient to take the output of a rayon plant, but the weaving and finishing divisions of the industry will have to be established before there is a commensurate local market for fiber and yarn. At the same time, it should be remembered that many varieties of rayon yarn would be needed to supply such a market.

Viscose-Rayon Goods May Need Bleaching

Technical Editor:

Will you kindly send me complete information for bleaching 80x50 and 50x52 viscose-rayon cloth? (9155)

Viscose rayon is normally bleached during the manufacture of the yarn and therefore requires little additional bleaching after being woven into piece goods, even if the goods are intended for whites. However, sometimes additional bleaching is necessary. If the cloth is of a satin, taffeta, or ninon construction, which can be prepared on a jig, a normal procedure would be as follows:

For a 2,000-yd. roll:
- 1 end—cold water
- 5 ends—at boil
  - 1 lb. synthetic detergent
  - 1 lb. tetrasodium pyrophosphate.
- 1 end—cold running rinse
- 2 ends—100° to 120° F.
  - 5 gal. sodium hypochlorite
  - 1 lb. synthetic detergent
- 1 end—cold running rinse
- 2 ends—antichlor
  - 1 lb. sodium bisulphite.
- 1 end—shell up through cold running rinse.

Spun rayons are usually desized without tension and then boiled off and bleached in kettles or becks. Crepes are desized by passing them open-width through the usual conveyor-type boil-off machine, after which they too are further scoured and bleached in becks. A typical procedure for the beck is as follows:

For 2,000 yd. of cloth:
- 1.5 lb. synthetic detergent
- 1.5 lb. tetrasodium pyrophosphate
- Bring to boil; boil 15 to 30 min.; rinse.

Bleach as follows:
- 7 gal. sodium hypochlorite solution

(*Continued on page* 186)

When you consider

that a total of over *14,000,000 yards per week* is bleached in the Du Pont Continuous Systems *now* operating in the mills listed at right—

Is it any wonder

that many other leading and well-known bleacheries have placed orders for Du Pont rope and open-width systems?

For continuous high-speed quality production of bleached cottons, look into Du Pont Continuous Peroxide Bleaching. Both rope and open-width systems are available to meet your requirements. Du Pont engineers and bleaching experts will be pleased to work with you, to survey your plant, study your requirements, help you select the proper equipment and assist you in many other ways.

Let us tell you more about these systems and how they can be used to meet your requirements. Technical advice on the design, installation and operation of units to meet your specific requirements can be obtained by writing or calling: E. I. du Pont de Nemours & Co. (Inc.), Electrochemicals Department, Wilmington 98, Delaware.

These mills *now* use Du Pont Continuous Systems:

CANNON MILLS CO.
2 Units—Kannapolis, N. C.

RENFREW BLEACHERY
Travelers' Rest, S. C.

ROCK HILL PRINTING AND FINISHING CO.
Rock Hill, S. C.

LOWELL BLEACHERY SOUTH
Griffin, Ga.

DAN RIVER COTTON MILLS, INC.
2 Units—Danville, Va.

SAYLES FINISHING PLANTS, INC.
Saylesville, R. I.

JOSEPH BANCROFT & SONS CO.
Wilmington, Del.

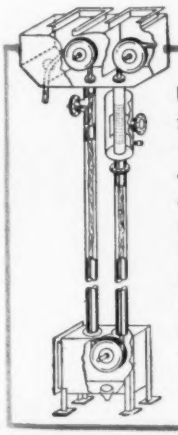
CLEARWATER MFG. CO.
Clearwater, S. C.

MANSFIELD BLEACHERY
Mansfield, Mass.

PLYMOUTH FINISHING CO.
Fall River, Mass.

CONSOLIDATED TEXTILE CO., INC.
North Adams, Mass.

W. ROBINSON & SON
Toronto, Canada



DU PONT CLOTH HEATER is the heart of the Du Pont Continuous System. This exclusive feature permits *controlled* bleaching—gives automatic control of the best bleaching temperature selected for a given fabric, regardless of cloth weight or operating speed. With uniform heating, you get the uniform bleaching needed for uniform dyeing.

DU PONT CONTINUOUS PEROXIDE BLEACHING

BETTER THINGS FOR BETTER LIVING
THROUGH CHEMISTRY

DU PONT

ONYX IONICS

Newsworthy items for textile technologists and production men

Vol. 1 March, 1947 No. 2

A New Cationic Softener with Unusual Resistance to Washing

Onyxsan LG is particularly effective for imparting a smooth, silky hand to candlewick textiles.

The Onyxsans have been assuring softer finishes, better drape and lasting hand on all kinds of fabrics for many years. They have made it possible to get a needed finish on many textiles which would otherwise be harsh and rough and virtually impossible to improve by ordinary methods.

Now Onyxsan LG is added to the series. This new Onyxsan is marked by the unusual durability of its softening action and a truly noteworthy resistance to washing. It provides a characteristically smooth, drapable, silky hand.

Like other Onyxsans, it is easy to use in applications in the dye beck, pad, jig or quetsch, followed by normal drying. Its action is due to effective plasticizing, thorough penetration and surface orientation of the cation-active radical of its composition. Unlike ordinary superficial surface lubrication, the Onyxsan effect is based on softness produced IN the yarn itself. Strikingly small amounts of Onyxsan LG are required.

Most Economical Wetting Agent

Phi-Φ-Sol WG is one of the most effective wetting agents known today, and in addition is the most economical in use because of its low first cost as well as its efficiency in very small dilutions. It can be used with all types of dyeing, bleaching and finishing agents with the one exception of cation-active materials, and is applicable to all textiles. Wherever fast wetting and penetration are required, Phi-Φ-Sol WG deserves investigation.

It is in extensive use today as a dye auxiliary; as an assistant in enzymic desizing; in pasting up dry colors; and as an auxiliary in sanforizing, printing and bleaching.

Hard Water-Stable Foaming Agent and Detergent

Oroset L is a liquid foaming agent and detergent which is completely stable to hard water. Its wetting action is limited, but it offers very promising possibilities as a detergent auxiliary where foaming is desirable, as well as a detergent in its own right.

Do You Want Them?

Regular issues of "Onyx Ionics" in four-page bulletin form will be regularly issued in 1947 beginning at an early date. If you want to receive this informative material, write us to put your name on the mailing list.

General Purpose Resin Finish Requires No Curing

Developed as a general purpose finish for cotton, wool, acetate and rayon, Xyno Resin AA40 is a highly versatile material. It is readily manipulated to give either a full, mellow hand or good stiffness and body without impairing luster.

It is a vinyl resin dispersion containing 40% resin of fine particle size. Its dilutions are very stable, and may be mixed with starch, gelatine, glue, water repellents, etc. It is free from solvents.

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Special Resin Finish for Nylon Netting gives a dry, springy hand. Resin S-69 is a copolymer resin dispersion containing 35% solids of fine particle size. It is free from solvents, and requires no curing. Applicable also to all types of fabrics. No. 49

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QUESTIONS AND ANSWERS

(*Continued from page 184*)

1 lb. synthetic detergent
Run 30 min. at 120° F.
Follow with cold running rinse.
Antichlor in standing bath with 1 lb. sodium bisulphite, 80° to 100° F. for 15 minutes.
Follow with cold running rinse.

Upon removal from the kettle, the goods may be hydro-extracted, loop dried, and finished.

It should be mentioned that cation-active softeners, if used in finishing operations, may produce a slight yellowing of the whites. If softeners are employed, preliminary tests should be made so that the most suitable type may be selected.

Fiber Cross-Sections Cut With Microtome

Technical Editor:

A few months ago I saw a small device being used in a laboratory in England for making cross-sectional slides of fibers for microscopic work. I was told that the device was invented in the United States. Can you identify this device and give me any additional information concerning it? (9161)

Apparently you are referring to the device used in the Hardy technique of preparing cross-sections of fibers for microscopic study. This apparatus and the technique for using it were described in the August, 1935, issue of TEXTILE WORLD on page 104.

The device is about 3 in. long and consists of three metal parts. One thin piece of metal contains a slot 0.0085 in. wide. A second thin flat piece of metal slides parallel to the first and pushes a short metal guide down the slot, pressing the fibers tightly together in a vertical position. The third part contains a small metal plunger on the end of a supporting screw for pushing the fibers slightly through the slot.

After the fibers have been inserted in the slot and secured firmly in it, they are cut off on both sides of the holder with a safety-razor blade. The plunger is then swung into place and used to push the fibers from one side to the other, according to the thickness of the cross-section desired. A drop of celluloid is put on the projecting ends, which are then sliced off with the blade. The thin celluloid slice carrying the tiny disks of fibers is ready to be mounted on the microscope slide.

The slicer firmly holds hair and other fibers without crushing them and keeps them in proper alignment for accurate cross-sectioning. The celluloid solution dries quickly without soaking into the fibers.

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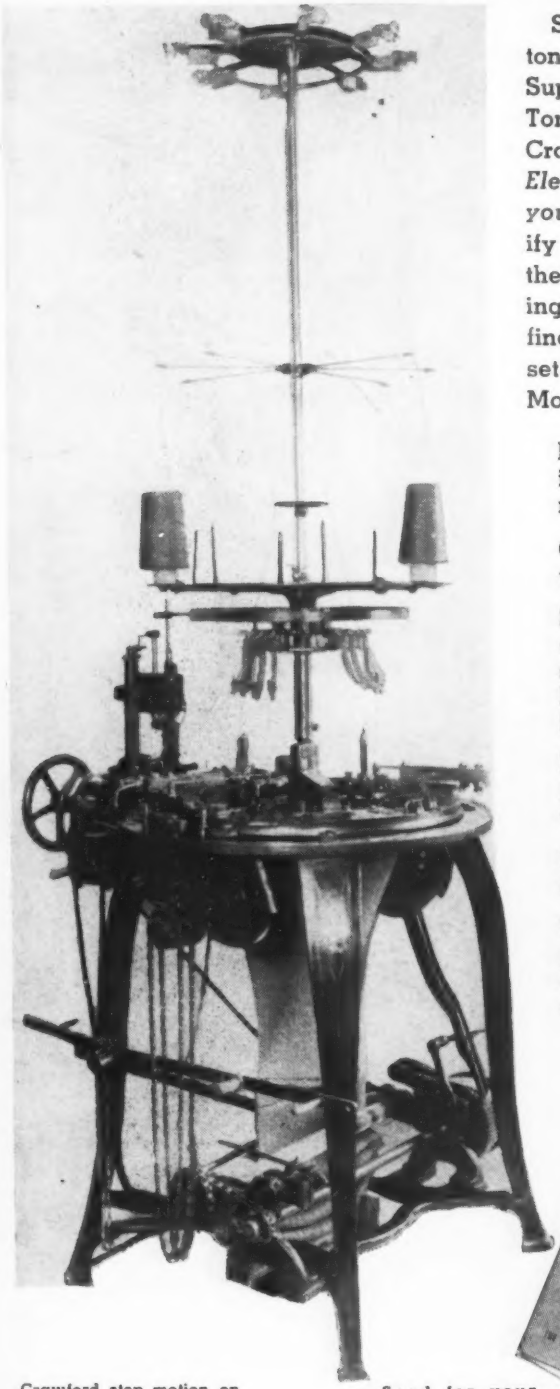

Crawford stop motion on Leighton machine.

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Note these improvements in the new post-war model:

Completely protects the yarn from cone to needle.

Stops machine automatically for loose ends, slubs, knots, catches or breaks—at needle or near it.

Provides quick, easy adjustment for different weights of yarns.

Reduces waste due to rundowns and quarters-off.

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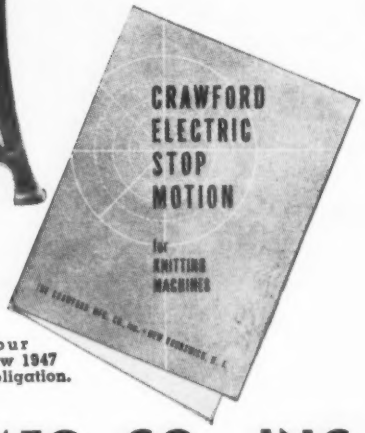

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Drafting Without Rolls

(*Continued from page 113*)

top dogs, the other is just above the bottom dogs. As the dogs become engaged, the clamps open, and vice versa. Placing the one set of clamps between the sets of dogs permits twist from the spindle to run up to that point and permits some twist to run to the section of roving being drafted.

ONE CAM. One cam actuates the whole drafting, holding, and combing mechanism. This cam fits into three U-shaped slots in arms that go to top dogs, comb, and bottom dogs.

The sidewise thrust of the cam not only causes the two sets of dogs and comb to engage the fiber, but also releases the two sets of clamps. Conversely, as the cam disengages the dogs and removes the comb, it permits the clamps to be re-engaged.

SETTING DOGS. The minimum distance between the two sets of dogs can approach zero (the drafting mechanism originally was conceived to handle very short asbestos fibers), but should be just over the length of the staple to be used. Fibers shorter than the staple length are controlled somewhat by permitting a small amount of twist to run between the sets of dogs, as already mentioned.

Mr. Foster's machine, which is protected by U. S. Patents Nos. 2,110,215 and 2,139,320, can be used to cover rubber thread. It also can have an individual stop motion for each spindle. So far, there are no definite plans to produce this mechanism commercially; but at least one machinery builder has expressed interest in doing so.

Resist Printing

(*Continued from page 139*)

Either as an alkali-binding agent and as an oxidizing agent, the paste interferes with necessary chemical reactions for the fixation of the dyestuff surprinted by the cover roller; and, in the absence of fixation, a white pattern is produced. It is of course possible to print as many colors as may be desired along with the white resist. Here again the economy of separate cover rollers for producing different patterns under the same cover is obvious.

PREPARATION OF CLOTH. It is important that cloth for resist printing be thoroughly absorbent. For fine handkerchief fabrics, this does not usually present any great difficulty. On the other hand, careless handling

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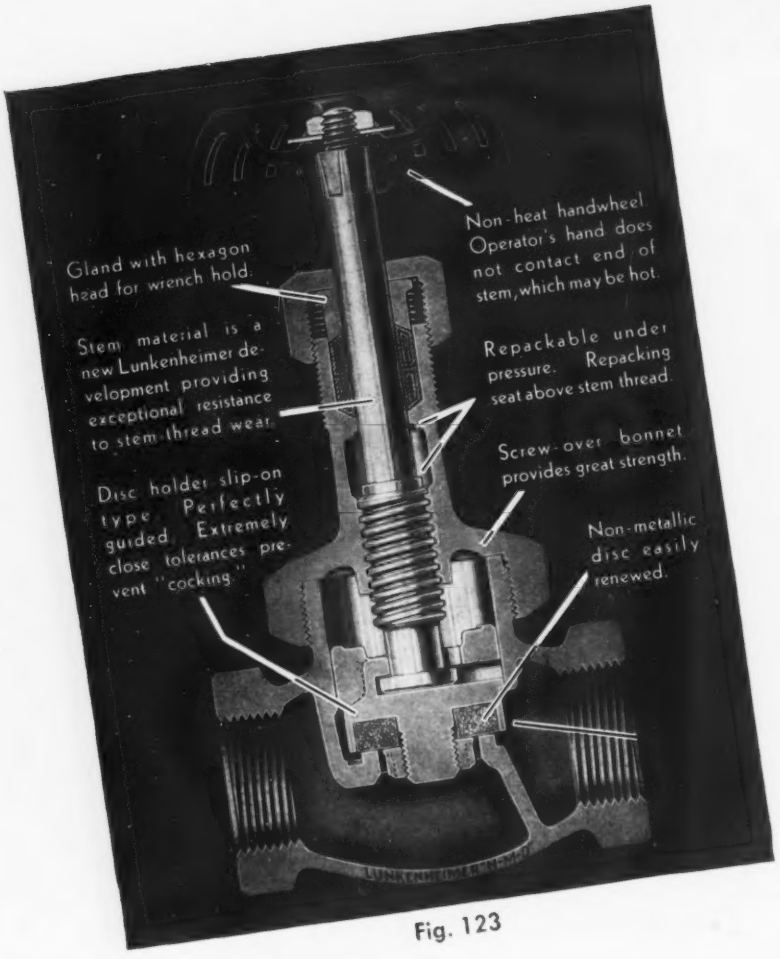
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Disc holder slip-on type. Perfectly guided. Extremely close tolerances prevent "cocking."
Non-heat handwheel. Operator's hand does not contact end of stem, which may be hot.
Repackable under pressure. Repacking seat above stem thread.
Screw-over bonnet provides great strength.
Non-metallic disc easily renewed.

Fig. 123

NON-METALLIC DISC

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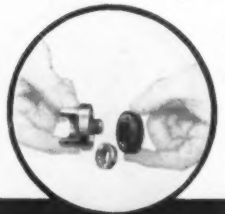

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LUNKENHEIMER VALVES

BRONZE, IRON, STEEL, AND CORROSION RESISTANT ALLOY VALVES
AIR DEVICES, LUBRICATORS, AIRCRAFT FITTINGS

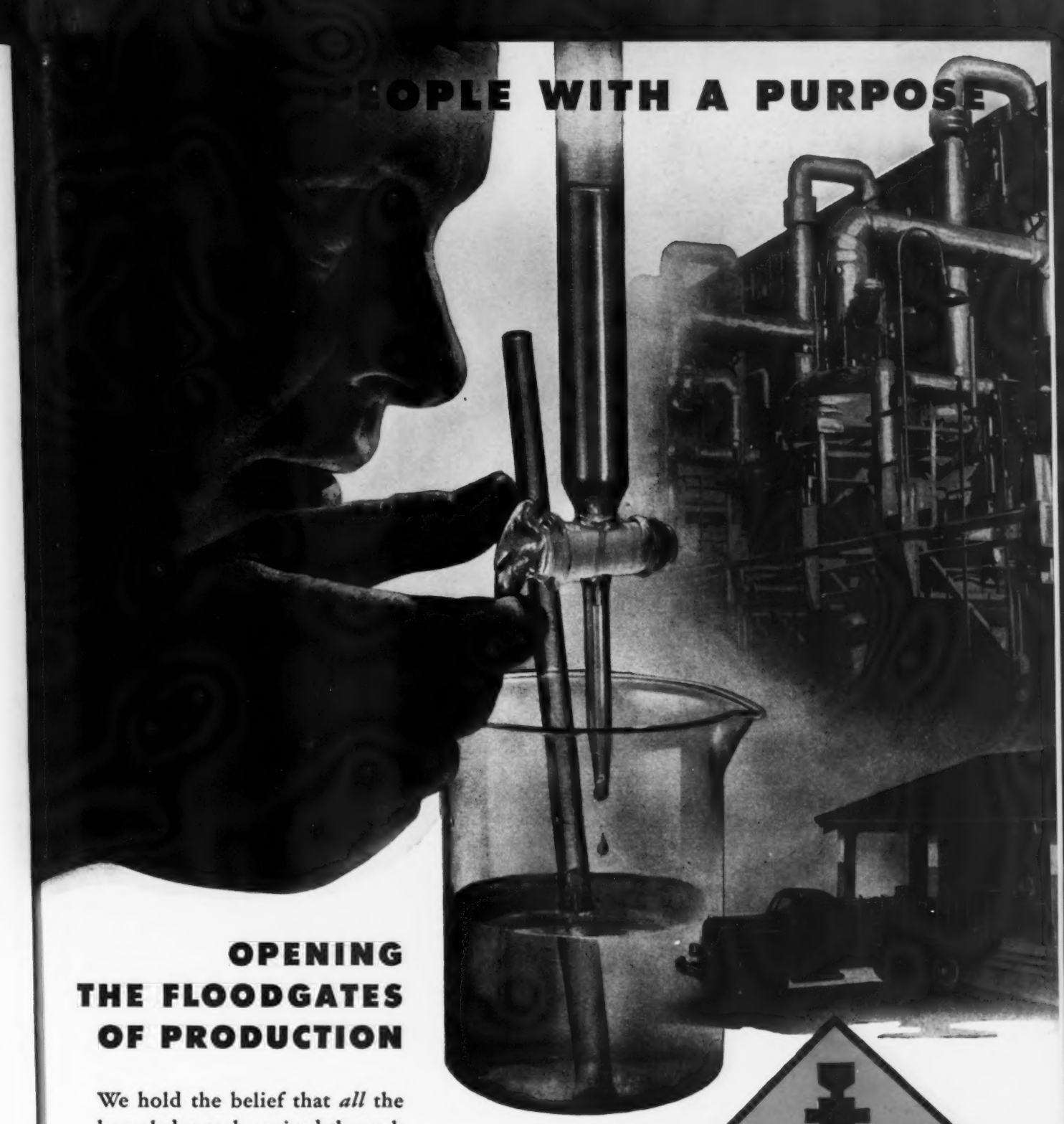
in the bleachery may result in patches of lime resist, uncleared sizing material, etc., which would hinder the production of fine detailed prints. For this reason, thorough desizing should be carried out. When preparing the cloth for printing, it should be treated with a solution of a wetting agent like sulphonated castor oil to provide a soft, easily penetrated surface. For very fine cloth, this treatment is of particular importance since the stipple cover effect is usually printed on only one side of the fabric. The great pressure on the printing rollers and the absorbency of the cloth are relied on for the production of well-penetrated prints. Solutions of this kind may be of the order of 1 part of wetting agent to 40 parts of water.

Apart from the question of producing a good, well-penetrated cover-effect, the thorough penetration of the resist paste is of prime importance. In handkerchief printing, it is obvious that the white effects must be equally good on both surfaces of the cloth. In achieving this end, the absorbency of the cloth is a main factor. Other factors include the nature of the thickening used in the resist paste and the depth of the engraving on the printing roller for the white resist.

PREPARATION OF PRINT PASTES. For fine fabrics, penetration is an essential feature of both resist and cover pastes. For heavier cloths such as may be used for men's handkerchiefs, the print paste for the cover will need to be such that little or no penetration is obtained. The reason for this is that it is not possible to obtain sufficiently good penetration on such fabrics by printing only on one side of the cloth; two printings are therefore necessary if both surfaces are to be covered. If the first printing penetrates the cloth too deeply, the second printing is marred in its effect by the partial impression carried through from the other side.

In every resist-print paste, the thickening used is of primary importance. This constitutent must be such that large amounts of solid matter can be easily absorbed, while at the same time the paste must be capable of giving a well-penetrated printing impression. As easy removability is important, the thickening must be readily soluble. Converted starches, gum Senegal, and the newer types of cold-swelling crystal gums are in this class. These thickeners will give the clear-cut printing impression which is important in producing resist effects.

A suitable recipe for a white resist under dark vat-color cover prints fol-



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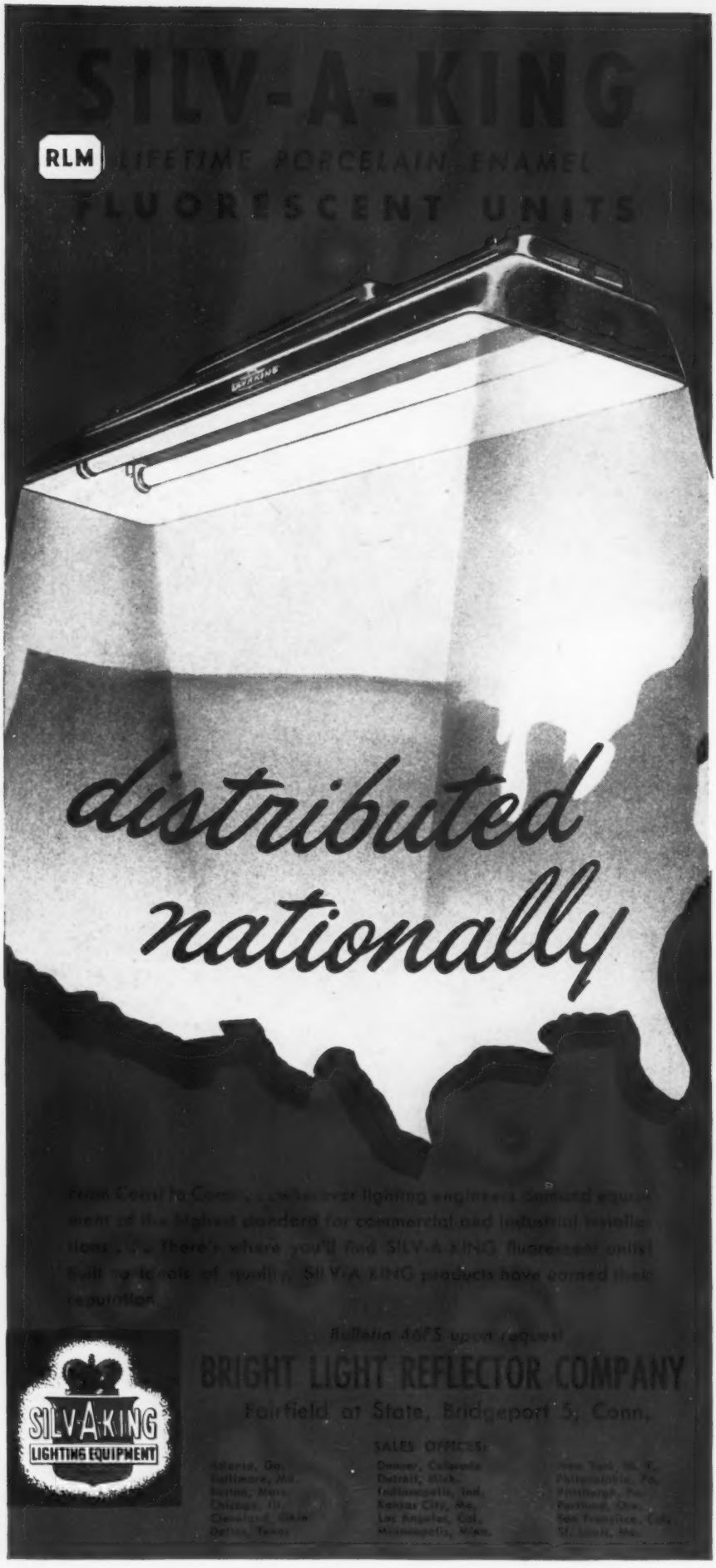

lows: 4 pints gum thickening; 2 lb. resist salt; 1 lb. Leucotrope W; 1 lb. zinc sulphate; dissolve together in water sufficient to make 1 gal. in all.

Actually such a recipe can be only a rough guide to what is required in any particular instance, and modification will be required according to individual preference and conditions of working.

The resist salt is sold under a variety of names but is known chemically as the sodium salt of m-nitro-benzene-sulphonic acid. It is a mild oxidizing agent and inhibits the fixation of vat dyestuffs.

Leucotrope W is the disulphonate of dimethyl-phenyl-benzyl-ammonium-chloride which is said to act merely as a catalyst in bringing about the stripping or discharging of the actual vat dye.

The zinc sulphate acts as an alkali binder and brings about the precipitation of the alkali in the vat-print paste in the form of an insoluble hydroxide on the fiber. Additions which may be made to such print pastes include China clay, titanium dioxide, manganese dioxide, sulphur paste, glycerine, ammonium nitrate, etc. It will be observed that both the chemical and mechanical aspects of the resisting effect are utilized in the prevention of the fixation of the vat dyestuffs in the cover-print paste.

PRINTING. To work well in the printing machine, a paste must have good flowing properties in order to be easily removed by the doctor blade from the unengraved portions of the rollers. Otherwise scratching and scumming of the surface of the rollers will occur and some of the resist paste will be transferred to portions of the cloth not intended to be resisted. Large amounts of solid in the resist paste hamper its flowing property, especially if the paste becomes cold. Print pastes of this type are often heated and should be printed from a color-box heated by means of a steam jacket. Thus, the flow of the print paste is preserved and in addition the penetration is aided. The resist is thus made much more effective where the cover print is going to be applied on both surfaces of the material. Roller engraving for applying resist pastes should be as deep as possible so that clear, well-penetrated, and sharply defined resist effects are produced.

If the cover print is to be applied to only one surface of the cloth, it also must have good penetration to give an equally satisfactory appearance on both sides. If the print paste is kept fairly thick for the purpose of a well-defined impression, penetration will be partly hindered. As with the resist,

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deep engravings will help here also, as will proper preparation of the cloth. The use of tragacanth in the paste may help, as this thickening agent, carefully used along with others, can give qualities of penetration to a print paste without causing spewed impressions. Sulphonated-pine-oil assistants are useful as additions to the print paste for their wetting and penetrating aids.

Where penetration is of supreme importance or where cover styles without a white resist are in question, it is good practice to print the goods with the required colors, fix by steaming, developing, etc., wash-off and print the cover on the washed-off and tentered goods which are now free from print paste and thickening and so offer no resistance to the penetration of the cover print. Where white resists are printed, however, this practice cannot be used, as the covers must be printed while the resist paste is still on the cloth.

When covers are printed on both sides, it may be difficult to get equally good impressions on both surfaces for on the second run the fabric will be stiffer and as a result the second printing of the cover will be less well defined than the first. In such cases the print pastes should be kept as soft as possible consistent with good definition (use tragacanth as indicated). At the same time, it is well to use minimum pressure on the rollers to keep the print as much on the surface of the cloth as possible.

Actually to get the best results in cover-printing on both sides of white resists, it will be necessary to print the goods three times. The first printing applies the resist paste along with whatever other colors are called for. The goods are then dried before the application of the first cover in order to increase the resisting effect of the resist paste. When the resist paste is still damp at the time the cover is applied, a certain amount of the resisting effect is lost and the purity of the white effects may be marred. For the second cover printing on the other side it is of course necessary to rebatch the goods and run again.

Print pastes which froth, thicken, or dry into the engraving are not suitable for the production of cover effects. If there is alteration in the consistency of the print paste during the run, the definition of the cover effects will vary so greatly as almost to change their character in some cases. Thickenings with good powers of suspension (tragacanth), solvents for vat dyes (Glycine A, etc.), and wetting agents to reduce surface tension of print pastes will all aid in avoiding these troubles.

WASHING-OFF. After drying, the prints are steamed in the rapid ager in

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the ordinary manner for fixation of vat dyestuffs. The wet development and washing-off requires rather more care than usual. In normal development, the colors are oxidized with sodium bichromate and acetic acid to 140° F. Where white resists are concerned, the use of peroxide development gives purer white effects. For this purpose sodium perborate, sodium percarbonate, ammonium persulphate, or hydrogen peroxide may be used. The strength of the oxidation baths may vary from ¼ to ½ oz. per gal. of liquor at 140° to 160° F. Such baths exercise a slight scouring action and so assist the removal of the decomposition products of the resist paste together with residual thickenings. Where dark and easily reduced vat dyestuffs have been used, it is of primary importance to keep up the strength and temperature of the developing liquor by regulated additions.

Following development, a thorough wash-off is necessary. This should be conducted, if possible, in rope state in slack washing machines. Boiling soap liquors together with alkali and sulphonated fatty alcohol will give good results here. Soft water is used, with addition of 1 lb. soap, 2 lb. soda ash, and 8 oz. S.F.A. powder to give a wash-off liquor with good scouring and dispersing properties. Sufficient agitation must be given the cloth in its passage through the liquor to bring about thorough removal of resist-paste residues to insure pure white effects.

Raw-Stock Dyeing

(*Continued from page 125*)

cessive pressure, is one of the offenders lies in the observation that wool properly "poled" in old-fashioned wooden tubs was relatively free from air bells.

The composition of the dye has some bearing on the frequency of air bells. This is by no means to say that dyes may be the cause of air bells; however, different results have been obtained in conjunction with the previously mentioned sources of trouble by using different dyes.

The starting temperatures of dye baths are held generally around 90° to 100° F., which is the temperature range most suitable to the greatest number of the acid and chrome dyes. Some colors may be started at a higher temperature, and the writer's observation has been that this method has a beneficial effect in reducing air bells. Unfortunately, not many dyes are suited to higher temperatures.

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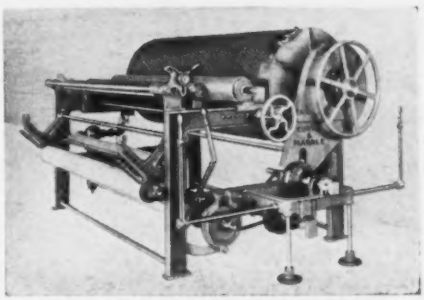

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Right—HILD Plain Handle (Standard) Floor Machine

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tom method in chrome dyeing. This method takes more time and is more costly; however, a man of imagination and persistency can do much in his experiments to discover just how far he can go to produce the desired results without consuming too much time, which is so dear in these days of efficient production.

Knitting Yarns

(*Continued from page 117*)

curately than must weaving-yarn spinners. Correspondingly, his tolerances on ring sizes are closer, although there are considerable differences in ring sizes between knitting-yarn mills running the same numbers. However, 2-in. rings are commonly used on yarn numbers from 10s to 30s, while 2⅛-in. and 2¼-in. rings are generally used on coarser numbers.

Yarn traverses are usually about 7 in. for medium numbers and 8 in. for coarse numbers. Both warp and filling winds are employed, but the filling wind is preferred because of the larger amount of yarn on the bobbin and the reduced ballooning during the cone-winding process.

In the spinning room, particularly, equipment must be flexible and personnel and supervisory organization well trained in order to facilitate frequent and rapid yarn changes. Most knitting-yarn orders are for comparatively small poundages, and many of the blends or numbers specified by these orders are not in regular production. Since mills do not find large inventories of roving or yarn advisable, these orders must be produced in their entirety.

CONDITIONING. In many mills, knitting yarn is conditioned before it is run on the winder, in order to set the twist and to prevent troublesome kinking and shelling off during later processes. There are two methods of setting twist. The older method of steaming yarn on spinning bobbins has been replaced in most mills by a method of spraying yarn with a water solution containing a hygroscopic agent.

Cone winding usually follows the conditioning of yarn on bobbins. Aside from the conveniences offered by the cone as a package for shipping, plying, and knitting, the winding process itself offers a valuable opportunity to analyze the quality of the yarn, the build of the spinning bobbins, and other important factors of manufacture. Excessive breakage, shelling off, or tangling at the winder indicates poor piecings, faulty process-

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AIR CONDITIONING

ALL TYPES
TEXTILE MILL INSTALLATIONS

Bahnson engineering, Bahnson equipment and Bahnson textile experience of more than thirty years is ready to develop a practical solution for any air conditioning problem, whether it concerns humidification, heating, evaporative cooling, refrigeration, dehumidification, electrostatic air cleaning, or in any combination desired—automatically controlled—and in either central station or individual unit type installations.

Bahnson System
POSITIVE CIRCULATION · LOWER OPERATING COST
AIR CONDITIONING ENGINEERS
THE BAHNSON CO WINSTON-SALEM, N. C.

886 Drewry St., Atlanta, Ga. 93 Worth St., New York City 703 Embree Crescent, Westfield, N. J. 553 S. Figueroa St., Los Angeles, Cal.
W. J. Westaway Co., Ltd., Hamilton, Ontario A-3 Virginian Apts., Greenville, S. C.

BOOTH

Quality CARD CLOTHING

High-grade carders merit the best card clothing. All BOOTH card clothing has a firm fabric or leather foundation yet is fully flexible, which reduces the possibility of shelling out. It is available with rehardened points.

Write for full information and prices on the many items in BOOTH'S complete line.

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Allegheny Ave. & Janney St., Philadelphia 34, Pa.

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ing, or improper blending or selection of stock.

Slub catchers or yarn cleaners on winders should be set carefully and uniformly. Tables of correct settings and methods of determining yarn diameters are furnished by winder manufacturers. The nature of each yarn imperfection found by the slub catcher should be accurately determined, and corrections or adjustments should be made to prevent as many of these imperfections as possible in order to reduce knitting troubles, needle breakage, and second-quality knit goods.

Sewing-Machine Upkeep

(*Continued from page* 131)

sharpening of cutters insures maximum efficiency. Checking of wear or burrs on looper hooks and polishing with very fine crocus cloth prevent thread breaking.

Machines in the underwear division are checked much in the same manner as in the hosiery section. Daily inspection and proper lubrication are musts. Much importance is given to tension adjustment, differential slipping, and feed dropping.

It has been found that an operator can average between 90 and 120 doz. pr. of hosiery per shift on 2,700-rpm. machines, and from 125 to 150 doz. pr. on 4,500-rpm. machines. Some operators with small hands prefer the smaller size hose. Every effort is made to distribute work according to size preference. Little, if any difference in number of pairs sewed has been noted on the basis of this distribution of work.

The success of the preventive maintenance and inspection system is seen in the fact that some machines have been in operation for ten years without necessitating replacement of major parts, and very few emergency repairs have been required.

TRAINING. A great deal of attention is given to employee training. After a week of instruction, an operator becomes fairly familiar with operations of sewing machines; and in another three to five weeks the operator has gained average production. All operators are trained to use both feet with equal pressure on pedals. This prevents leg fatigue.

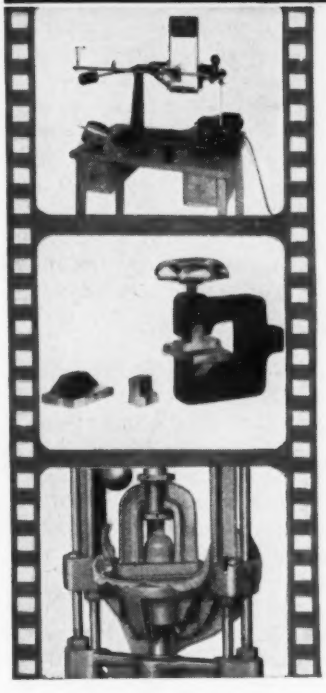
Defects which have developed either in knitting, looping, or sewing operations are corrected in the hand-sewing department. These defects include runs caused by a broken needle in the knitting machine, heavy spots or knots in yarn, snags caused in handling, dropping a stitch in looping opera-

KNITTING SHOW—BOOTH 322

"THY-MO-TROL"

Control—giving constant specimen-rate-of-load on "J" pendulum type testers

ALSO SHOWING:



IP-2 SERIGRAPH WITH NEW SLOW-OR-FAST RETURN

Light crepeage and tensile tester from single filament to 2,000 grams, with NEW GEAR BOX which incorporate BOTH the slow and fast return of the plane at the completion of the test.

NEW STRIP & FABRIC CLAMP

New method of holding gives results showing increased tensile strength. Available for both vertical and horizontal machines.

BALL BURST TESTER

Model W attachment, which is substituted in place of jaws on our regular fabric tester, indicates exact pressure necessary to rupture knit fabric.

"They all use Scott Testers"

Alabama Mills
American Thread Co.
American Viscose Co.
Avondale Mills
Bauer & Black
Belding-Corticelli, Ltd.
Bibb Mfg. Co.
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Calloway Mills
Canadian Cottons, Ltd.
Cannon Mills
Chrysler Corp.
J. & P. Coats
Dominion Textile Co.
Dow Chemical Co.
Duncan Mills
E. I. Dupont de Nemours
Ford Motor Co.
Forstmann Woolen Co.
General Electric Co.
General Motors Corp.
B. F. Goodrich Co.
Goodyear Tire & Rubber Co.
Gotham Silk Mills
Institute de Caoutchouc Francais
Institute of Paper Chemistry
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Textile Research Institute
Underwriters' Laboratories
U. S. Department of Agriculture
U. S. National Bureau of Standards
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U. S. Rubber Company
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U. S. War Department
Vanity Fair Silk Mills
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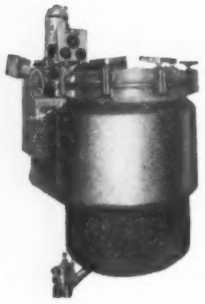
SCOTT TESTERS, INC.

95 BLACKSTONE STREET
PROVIDENCE, R. I.

Scott Testers — Standard of the World

The Fleet Line



STOCK DYE KETTLE

OPERATION SCIENTIFICALLY CONTROLLED

with Temperature, Pressure and Depth Indicators

This addition of a panel board with temperature, pressure and depth indicators to the Fleet Line Stock Dye Kettle is a typical example of how Riggs and Lombard is continually improving the design of its equipment.

This improvement in no way lessens the importance of other features, which are as follows:—

1. Will dye wool (noil or coarse carpet stock) as well as cotton and rayon.
2. Main kettle and expansion tank in one unit, eliminating many protruding fittings, and lowering upkeep cost and circulating friction.
3. Tilting or removable cover.
4. Inside of kettle is highly polished stainless steel plate, facilitating unloading.
5. Unloading done by electric or air hoist, which lifts out entire batch on perforated false bottom.
6. Kettle above flooring insulated with rock wool to conserve steam.
7. Pump submerged in dye liquor at all times, eliminating need for packing. Driven by easily accessible vertical motor. Delivers into large duct up through perforated center pipe and over stock. (No agitation of latter).

RIGGS AND LOMBARD

FOOT OF SUFFOLK ST., INCORPORATED LOWELL, MASS.

Sterling Ring Travelers

CO-OPERATE

Ring Travelers, to give the best results, should be "tailor made" to fit the rings and the particular conditions existing in your mill.

If you are not getting the results wanted, give us an opportunity to obtain the necessary information and then try out a Sterling "fitting."

We have helped others, how about you?

D. C. Anderson, Box 629, Cedartown, Georgia
J. R. Federline, Jr., Box 968, Spartanburg, S. C.
H. B. Cabaniss, Box 188, Monroe, N. Carolina

STERLING RING TRAVELER CO.
FALL RIVER, MASS.

tions, or by a defective needle or a bad latch.

Runs of one inch or over are classified as thirds and are sewed by machine. Shorter runs, resulting from defects in looping or knitting, are hand-latched. Holes resulting from a dropped stitch or from the looper are closed by use of a chain stitch. One side is stitched then the other, with back sewing. This gives a stronger stitch and a more even surface. A slender needle in the No. 5 to No. 10 size is used with regular yarn for all hand mending.

In the sewing room, the machines are installed in two rows 50 in. apart. Machines are mounted 42 in. from center to center on the new-style American safety tables. Light is obtained from windows in the rear of operators and from overhead fluorescent fixtures which give even distribution of light without shadows. An individual shaded light is mounted at each machine for additional light if the operator desires. The machines are operated from a central shaft under the table. It is inclosed to prevent accidents.

The sewing room is air conditioned and maintained at approximately 76° F. and 55% relative humidity. The temperature is high enough to keep machines operating at high efficiency and yet sufficiently cool for personal comfort. Walls are painted medium green from the floor to the bottom of windows, and a softer medium green is used on the remainder of the walls. The ceiling is painted white.

Knit-Cloth Dyehouse

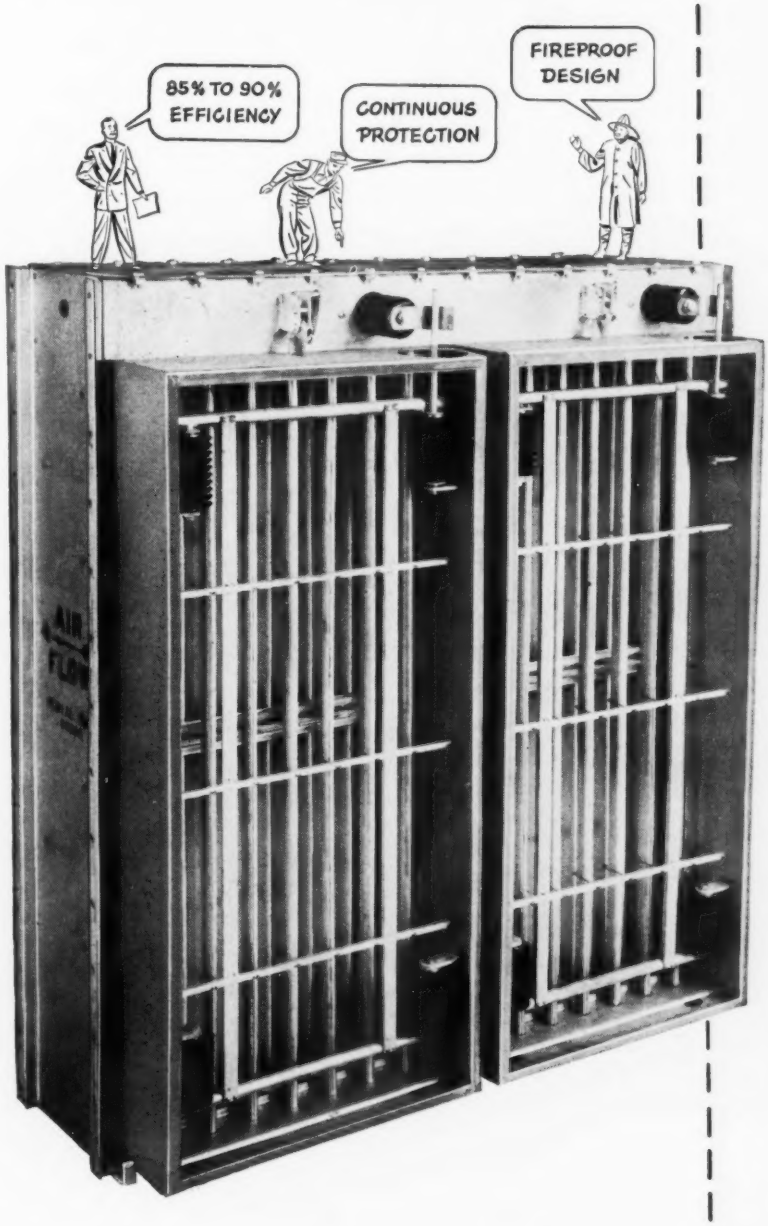
(*Continued from page* 121)

sion dyers and finishers. The reason for this is simple: underwear cloth is finished almost entirely in a bleached white; while the other circular-knit cloths have such diversified requirements as to color, shade, hand, type of finish, and the like, that the work is best handled by a specialized plant equipped for such diversification. The trade's need for diversified finishes becomes of more importance as the consumer becomes less interested in staple merchandise and must be tempted by styling, merchandising, and variety.

Carefully considered engineering preparation and detail work are necessary in carrying forward the construction of the circular-knit-goods dyehouse. The three prime requisites of any dyehouse are water, steam, and waste disposal. Rarely are all three found simultaneously at the site of the proposed plant. In judging the factors for and against proposed dye-

Electro-AIRMAT

The only air filter that gives 3-Way Protection



1. 85% to 90% Efficiency

Airmat paper, a proved filtering media for the past 20 years, offers even higher cleaning efficiency and longer life as the collecting element for this Dry Type Electronic Precipitator. When electrostatically charged, every fibre of Airmat paper becomes a collecting electrode to attract and hold airborne lint, smoke and dust. What's more, electronic action, by increasing its dust-holding capacity, extends the life of Airmat paper 30%.

2. Continuous Protection

You are never without filtered air with an Electro-Airmat on the job. If electronic action becomes inoperative due to power failure or in case of "stack effect" due to system design, Airmat paper continues to function efficiently as a mechanical filter.

3. Fireproof Design

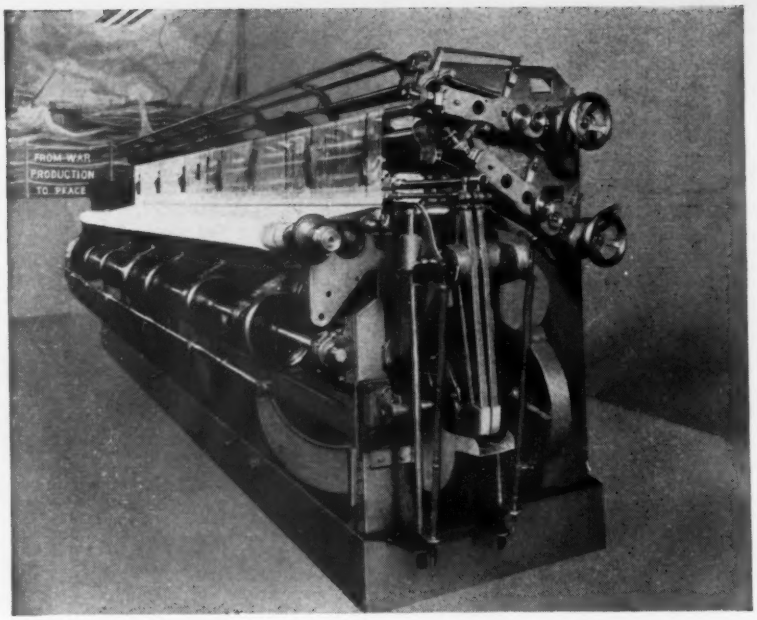
When using non-combustible Airmat paper, the Electro-Airmat eliminates all possible fire hazards. There is no oil film required to hold the collected material in place — no oiling by immersion or spraying — no sludge removal.

Here's three way protection for product, pocketbook and property plus installation economies resulting from 40% less weight and elimination of costly water connections and sewer drains. Write for Bulletin No. 253 describing this modern air filter. If you want really clean air, continuously, at lower cost, it's strictly a job for an Electro-Airmat.

AMERICAN AIR FILTER CO., INC.
304 Central Ave., Louisville 8, Ky.
In Canada: Darling Bros. Ltd., Montreal, P. Q.

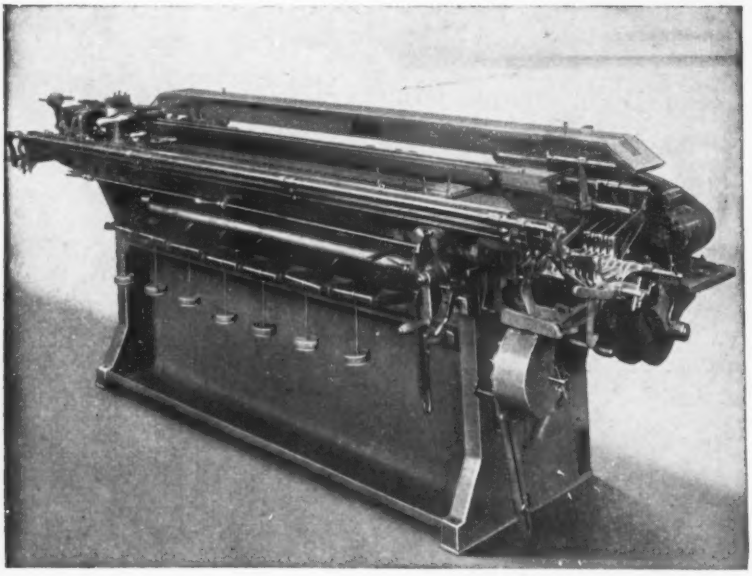
AAF
ELECTRO·AIRMAT
ELECTRONIC AIR FILTER

The Robaczynski Tricot



Capable of exceptional speeds in 180 inch width (26 gauge) this two bar machine assures the big money making production you've been waiting for.

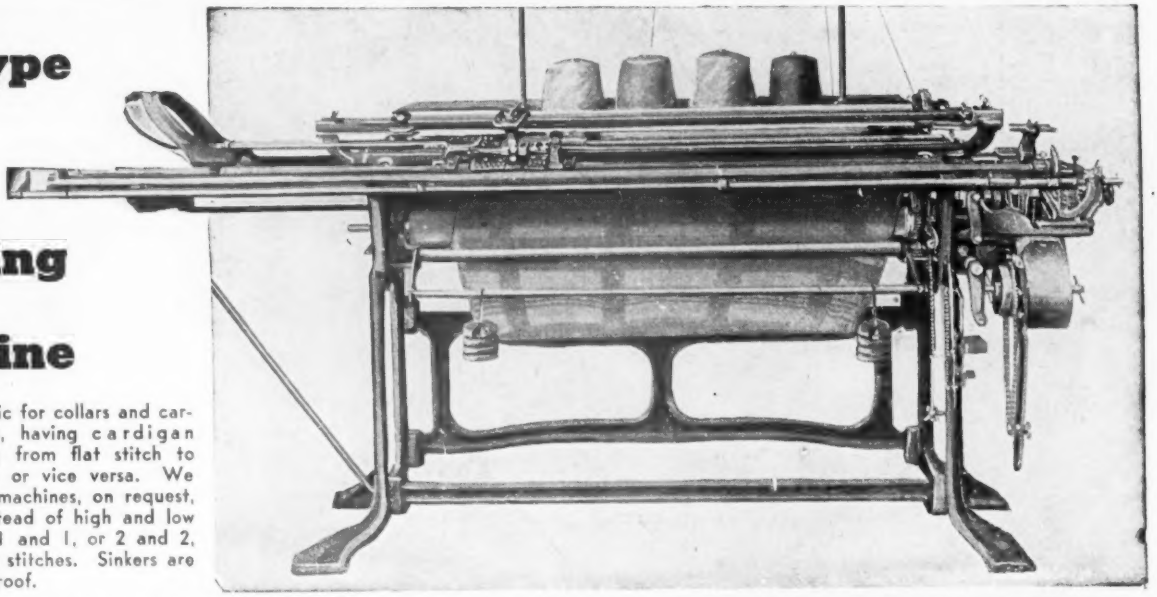
Exclusive base design eliminates vibration. The operator standing in a natural position reduces fatigue. Minimum tension stroke avoids whipping of threads. And many other improvements to assure versatility with a long and carefree life. See it in operation at our plant.



The Robaczynski Purl Stitch or Link Knitting Machine

Designed to produce the most intricate stitches such as cable, braid, basket weave, rope, flat on flat, open work, herringbone, etc. Heavy construction with receptacle to prevent soiling of goods. Simplest machine of its type to operate. Send for complete information.

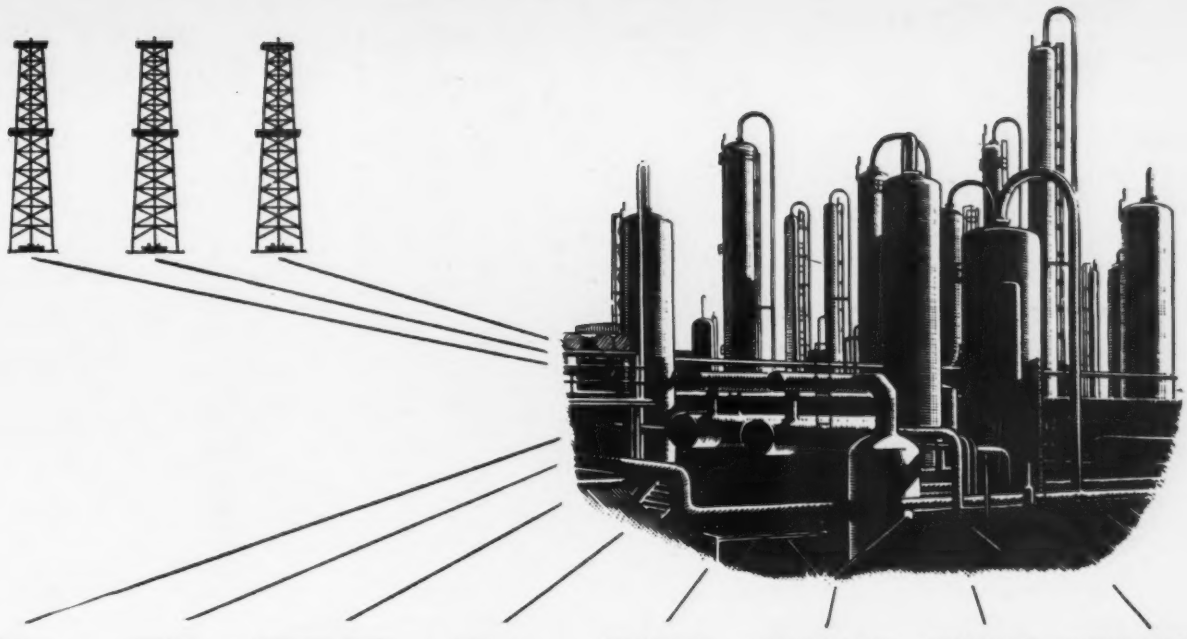
"V" Type Flat Knitting Machine



Fully automatic for collars and cardigan garments, having cardigan locks, changing from flat stitch to cardigan stitch or vice versa. We will also build machines, on request, with sinkers instead of high and low butts to make 1 and 1, or 2 and 2, and then jersey stitches. Sinkers are safe and fool-proof.

ROBACZYNSKI MACHINE CORPORATION

340 TEN EYCK ST., BROOKLYN 6, N. Y.



ACETIC ACID	ACETONE	PROPIONALDEHYDE	METHANOL	ACETALDEHYDE	n-PROPYL ALCOHOL	FORMALDEHYDE	TRICRESYL PHOSPHATE
Uses include:	*Uses include:*	*Uses include:*	*Uses include:*	*Uses include:*	*Uses include:*	*Uses include:*	*Uses include:*
Synthetic Textiles	Industrial Solvents	Plastics	Varnishes	Synthetic Rubber	Lacquers	Laminates	Plasticizers
Plastics	Lacquers	Organic Chemicals	Drugs	Plastics	Solvents for Coatings and Plastics	Plastics	Paints
Solvent Esters	Dyes	Pharmaceuticals	Antiseptics	Organic Chemicals	Organic Chemicals	Preservatives	Lacquers
Paints	Coatings		Solvents			Paper	Coatings
Drugs	Cosmetics		Anti-freeze			Photographic Chemicals	Lubricants
Pharmaceuticals			Soaps			Essential Oils	Air Conditioning
							Hydraulic Fluid

Celanese Petroleum Chemistry

. . . a service to American industry

MORE than twelve years ago, Celanese Corporation of America, as one of the pioneers in the field of petroleum chemistry began an intensive and integrated program of research. Out of this program have come discoveries which have led to the production for American industry of a whole new group of important synthetic organic chemicals, as well as greatly expanded volume in other chemicals never before made from petroleum sources.

The extensive Celanese chemical plant—located near Bishop, Texas, in the heart of abundant supplies of natural gases—embodies original engineering, advanced processes and equipment. Petroleum gases are piped into the plant where they furnish both the raw materials and the fuel for virtually the entire operation. Recent completion of additional plant units further extends the position of Celanese as a major producer of organic chemicals.

Celanese ranks among the leading producers of such important industrial chemicals as formaldehyde, acetaldehyde and acetic acid—widely used by industry. Celanese has also begun the volume production of organic chemicals that up to now have been available only in laboratory quantities. Advanced chemicals such as propionaldehyde and normal propyl alcohol have properties and advantages that make them invaluable in many branches of industry.

The company's Texas chemical operations, which consist essentially of taking basic hydrocarbon gases and rearranging the molecules to produce an almost unlimited number of chemical compounds, is so flexible that Celanese can quickly meet the changing needs of chemical markets. Production can be concentrated upon any particular group of organic chemicals or shifted to other groups in accordance with industry demands. In addition, the requirements of the company for chemicals needed in manufacturing its own textiles and plastics can be met with the exactitude that quality controls provide.

The petroleum research program which made these achievements possible will be expanded through the new Celanese research center located near Corpus Christi, Texas, for advanced work in petroleum chemistry.

Celanese Corporation of America, 180 Madison Avenue, New York 16.

*Reg. U. S. Pat. Off.

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Celanese*

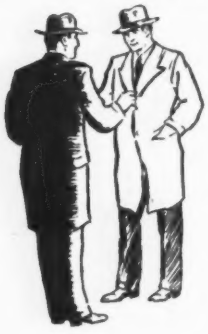
CHEMICALS...TEXTILES AND PLASTICS

THE TEXTILE INDUSTRY IS TALKING ABOUT

DRUMMOND SOAP FLAKES!

THE SAME FEATURES OF DRUMMOND SOAP—*Plus*

EASY TO USE—SUDS BETTER!



Drummond Flakes are so easy to use! And you couldn't get a flake that suds better! Note these Drummond Soap features: high body with low alkali content . . . leaves fabrics perfectly clean with softer feel, brighter colors, and whiter whites. Try Drummond Flakes and note the difference in your fabrics. Ask for Drummond Flakes or Solid.

Want to try a sample first? Write today for free working samples. Try them on your own goods. You'll want to use Drummond all the time.

Standard Soap Co. of Camden

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G. TANGUAY
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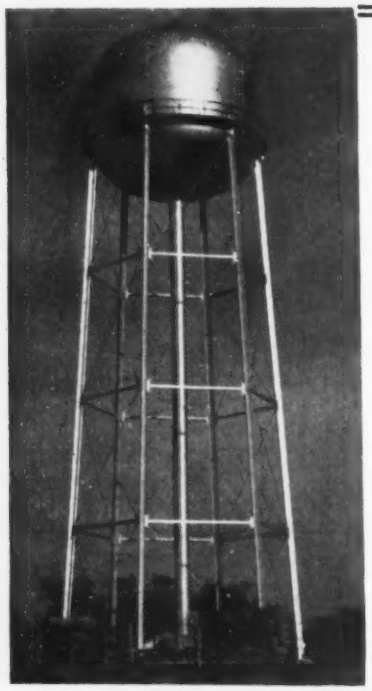


TANKS

For over eighty years the Southern textile industry has looked to Cole for design, fabrication and erection of elevated tanks for sprinkler and general service.

Also for the design and fabrication of bleaching kiers, starch kettles, and vats and vessels of all types—in stainless steel, Monel metal, special alloy steels and kindred materials.

Our experienced engineering department is at your service. Write for our general catalog—"Tank Talk."

R.D. COLE MFG. CO. Newnan Ga. ESTABLISHED 1854

house sites, one must weigh the absence of a ready supply of water or the lack of a boiler plant in one site as against another site which presents a difficult problem of waste disposal or improper building construction. This question is solved by the practical expedient of choosing that site which presents the least difficulty in supplying the missing member of the three prime dyehouse factors.

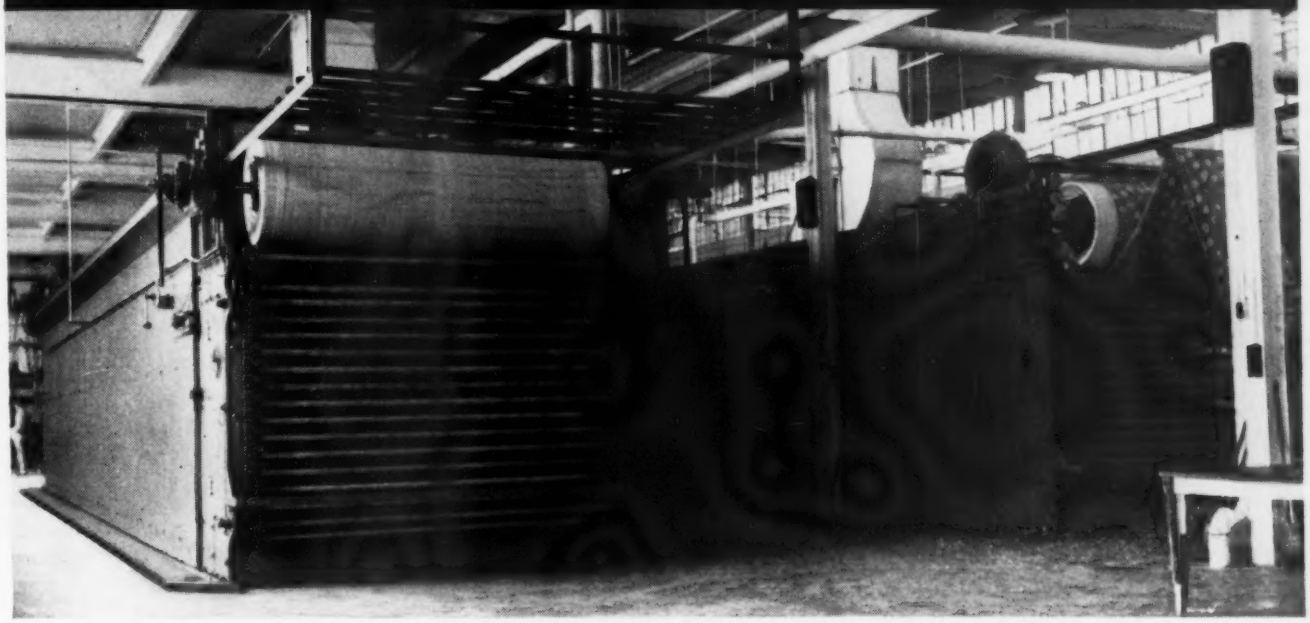
THE WATER PROBLEM. A cheap source of soft water is a good start toward having a successful dyehouse. If water is not present, it is possible to drill for it. Well-water is hard and has to be softened, and there is the attendant expense of setting up a suitable system. Water obtained from a stream or lake may be soft. If the plant is located near a stream, it will be necessary to purchase equipment to pump the water, to filter and store it in safety tanks, and probably to soften it. Such an installation costs between $10,000 and $20,000, depending upon the amount of water to be used. There should be a test of the water available at the proposed dyehouse site. Water, which has a hardness of less than 60 parts per million of calcium and manganese salts, is considered soft and suitable for dyeing. The presence of iron in dyehouse water is undesirable, especially for the bleaching process. Water which has not been filtered may be full of dirt and sand particles.

It is possible to soften hard water with chemicals put directly into the dye bath, but this often proves to be expensive. The zeolite method is most commonly used for softening water, and its cost runs about 1¢ per 1,000 gal. The cost of pumping and filtering is a like figure. If city water is soft and can be purchased at a rate of 5¢ to 15¢ per 1,000 gal., this is an advantageous set-up except for the large dyehouse or bleachery. A dyehouse uses 5 to 10 gal. of water for every pound of goods processed.

The water should be delivered into the dyehouse at sufficient pressure. Pressure of 50 lb. per sq. in. would be minimum for water requirements, and it should be above that figure. The water main should be at least 4 in. in diameter; a water main of 6-in. diameter would be the proper size for four dyebecks and one or two kiers. As the cost of labor is considerable, the dyebecks should be filled as rapidly as possible, and as there may be a call from all dyebecks at the same time, the water supply system should be gaged to supply it without reducing the supply to a trickle from the pipes.

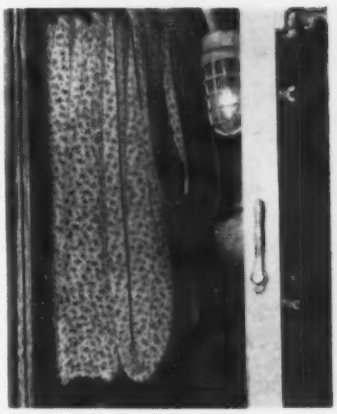
Speed in bringing water to a boil also saves money. It is convenient to have both hot and cold water available

Combining HIGH PRODUCTIVE CAPACITY and QUALITY DRYING—



PROCTOR *Loop* DRYER

One of the most versatile drying machines ever developed for the textile mill is the modern Proctor Loop Dryer. This rugged, high capacity machine combines large scale output with dependably high quality finished results. While it has long been used for the drying of toweling and washed dyehouse goods, it has recently proven itself in the drying of spun rayons and similarly finished fabrics. Many recent installations have been designed for high temperatures and are being used with marked success for curing resin treated fabrics. There are many operating advantages that make this machine worth the textile finisher's close investigation. Not the least of these is the air looping device by which cloth is formed into loops over the conveyor girts. The photograph at the right was taken *in action*—and is unretouched. It shows clearly the uniformity of loops and the careful manner in which these loops are formed. Accurate control of temperatures and air circulation, to suit character of goods being dried, makes possible using the machine for a variety of weights and finishes. Covered conveyor girts that revolve intermittently prevent finished goods from being marred by stick marks.



If the drying of toweling, washed dyehouse goods, finished piece goods—or the curing of resin treated fabrics—is part of your plant operation, you would do well to investigate the details of the modern Proctor Loop Dryer.

PHILADELPHIA 20, PA.

PROCTOR & SCHWARTZ INC.

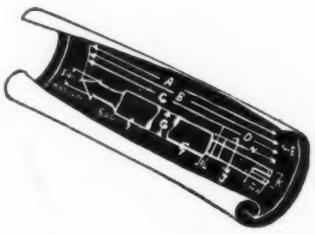
RAYON BRIGHT - RCK BLACK

TWO FAMOUS FLYER FINISHES

RAYON BRIGHT is highly buffed and polished to resemble a chromium plated finish. This finish was developed especially for use in Rayon mills where conventional finishes were not satisfactory.

RCK BLACK is a beautiful, glossy, highly rust-resistant finish that has proved so superior in White Goods mills that today over 400,000 are in use in mills from Maine to California.

In either of the above finishes . . . all flyers are completely rebuilt to highest standards before the finish is applied. Whether you prefer RAYON BRIGHT or RCK BLACK . . . Ideal is equipped to give you the finest in workmanship and service.



SPINDLES REBUILT TO FACTORY BLUEPRINT SPECIFICATIONS

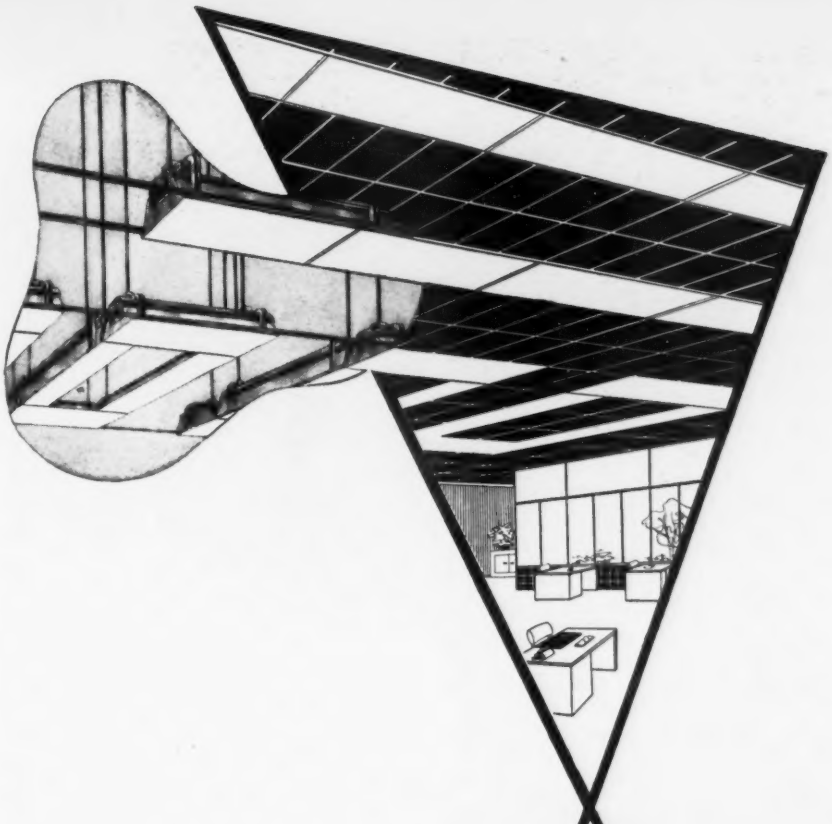
We Furnish spindles and flyers while yours are being repaired

IDEAL MACHINE SHOPS

INCORPORATED

BESSEMER CITY, NORTH CAROLINA

23RD YEAR OF CONTINUOUS SERVICE TO TEXTILE MILLS



Good lighting, plus ceilings unlimited ..one lighting system gives you both

CEILINGS UNLIMITED — a boundless new field for the use of light as a structural aid in interior design is the added benefit offered stores, offices, schools, factories and public buildings through the installation of MILLER FLUORESCENT TROFFER LIGHTING SYSTEMS.

THE MILLER CEILING FURRING HANGER (patented) — which supports structural ceiling and TROFFER lighting system — simplifies installation and makes possible a versatility of lighting applications to form any ceiling pattern desired — CEILINGS UNLIMITED.

More! Installation is simplified. Less than half usual number of supports needed from structural ceiling. Wiring costs cut up to 50%, and conduit and conduit fitting costs up to 80%.

Miller Lighting service is all-inclusive. Its 50 and 100 FOOT CANDLERS (Continuous Wireway Fluorescent Lighting Systems) have been established as standard for general factory lighting. And its Incandescent and Mercury Vapor reflector equipment have broad factory and commercial application.

MILLER field engineers and distributors, conveniently located, are at your call.

THE MILLER COMPANY

ILLUMINATING DIVISION, MERIDEN, CONNECTICUT

ILLUMINATING DIVISION: Fluorescent, Incandescent, Mercury Lighting Equipment. HEATING PRODUCTS DIVISION: Domestic Oil Burners and Liquid Fuel Devices. ROLLING MILL DIVISION: Phosphor Bronze and Brass in Sheets, Strips and Rolls

EMPIRE
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TEXTILE MILL
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EMPIRE MILL CRAYON
JUNIOR MILL CRAYON
Made to the most exacting requirements of wool, cotton and rayon textile mills by the "OLD FAITHFUL" crayon specialists who have led their field for more than a century.
"Empire" is made in 18 clearly distinguishable colors. Large and small sticks as illustrated above.
Write Dept. T-3 for FREE Chart
Showing actual colors
THE AMERICAN CRAYON COMPANY
1706 HAYES AVENUE, SANDUSKY, OHIO
NEW YORK
SAN FRANCISCO
DALLAS

This new manual shows you exactly

How to use COLORS more effectively

FROM psychological effects of individual colors on people—to specific formulas for mixing colors to meet the requirements of artists, painters, decorators, etc.—this new manual brings together the important pointers you should know in order to apply colors for best effect. Compact and well illustrated, the book provides a unique yet simple system for speedy, accurate identification and selection of a wide variety of today's standard and popular hues, tints, tones, and shades including 242 formulas for mixing them. Clear descriptions of each are given and 96 are shown in their exact color.

Just Out

PRINCIPLES OF
Color and Color Mixing
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130 pages, 7¼ x 9⅞, illustrated with color charts, $4.50

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in the dyehouse. The cold water may have a temperature of 50° to 60° F., while the hot water should be about 150° F. Time is saved by bringing hot water into the dyebeck and then raising the temperature by steam from 150° F. to 212° F. The cost of heating water from 50° F. to 212° F. is the same whether it is done in the dyebeck or in stages without and within the dyebeck.

THE STEAM SUPPLY. The boiler plant should have the capacity to deliver sufficient steam at adequate pressure. The rough figure used in computing the quantity of steam necessary for the dyehouse is 50 hp. of boiler capacity for each dyebeck, kier, and dryer. According to this rough figure, a plant consisting of one kier, four dyebecks and one loop-dryer, would need a boiler with a 300 hp. capacity. Modern loop-dryers are engineered to operate at 100 lb. per sq. in. pressure, which sets the minimum requirement for dyehouse steam.

Since a boiler needs periodic repairs or cleaning, many dye plants have an extra boiler to operate in emergencies and as a spare. The steam boiler may be coal- or oil-fired, depending upon the economy factors of fuel cost and boiler operation and maintenance. A coal-fired boiler may be operated by hand or by stoker. Oil is usually more expensive than coal in fuel cost, but the maintenance and operation of an oil burner has attractive features. Many state laws require licensed firemen to operate boilers, as may some insurance companies. It is cheaper to keep the boiler going 24 hr. a day, seven days a week, than to start and stop the boiler fire intermittently. Often, the watchman also serves as fireman. Boilers range in price from $5,000 to $15,000, with additional cost for smokestacks, installation, and the like.

As the pressure of a going boiler drops immediately when cold water is introduced, the practice is to pre-heat the water in a tank and pump it into the boiler. A further economy in boiler operation is to gather all used and usable steam, usually from the dryers, and bring it back to the boiler by means of a condensate-return system.

WASTE DISPOSAL. Waste disposal may present a serious problem. Many state laws forbid the pollution of streams by discharge of dyehouse and other industrial waste. In large cities, waste disposal is secured by hooking up the dyehouse with the municipal sewer system. In smaller towns, the local municipal disposal plant often lacks the capacity to handle the dye-

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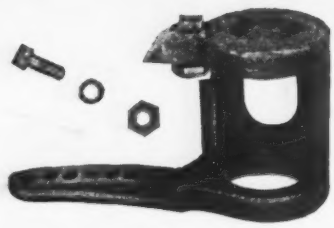

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house waste. Installation of a waste-disposal system is the final solution, and its cost is comparable to that of a water-supply system.

Frequently, the dyehouse building is located too close to its water supply, if a stream or lake; and in such cases, spring floods often cause annoyance and damage. The dyehouse building should have cement floors, pitched in such a manner that any water on the floor will run off quickly into a floor drain. The dyehouse proper should be built with an engineered sewer system so that there will be no pools of water whenever a dyebeck is flooded to remove scouring wastes or the like.

High ceilings and good ventilation are an asset, as they permit quick exit of excess steam vapors. Steel roofs and girders are to be avoided, as the ever-present steam will rust the steel in time, and this rust will drop into the goods. High ceilings are desirable in the room where the dryer is installed to make for more pleasant working conditions on hot days. The dyehouse and finishing plant should never be in the same room, although they may be connected by door or passage. Exhaust fans should be placed at a convenient height to remove excess steam. Blower heaters are most commonly used to heat the building in cold weather. The building should be big enough for adequate storage of gray goods and of finished goods.

HANDLING DYES AND CHEMICALS. The dye kitchen where dyestuffs are kept, weighed, and prepared for use, should be convenient to but away from the dyehouse proper. The dyer should be given his own office in the dyehouse. This office should have a window giving north light to aid him in his matching of shades. The office should have some simple laboratory equipment, a basin with running water, an electric table-stove, and the like. Heavy chemicals should be stored in a shed adjacent to but separate from the dyehouse. Safety devices for handling carboys of acid and hydrogen peroxide are advisable.

Stainless steel equipment throughout the dyehouse is advantageous and makes for economical operation. Not only should the kiers and dyebecks be made of this material, but also the pails, bowls, and other utensils. Large plugs and outlets on equipment make for quick and rapid emptying of waste waters. Current labor costs are such that all labor-saving devices and mechanisms should be considered with favor in selecting and installing the equipment.

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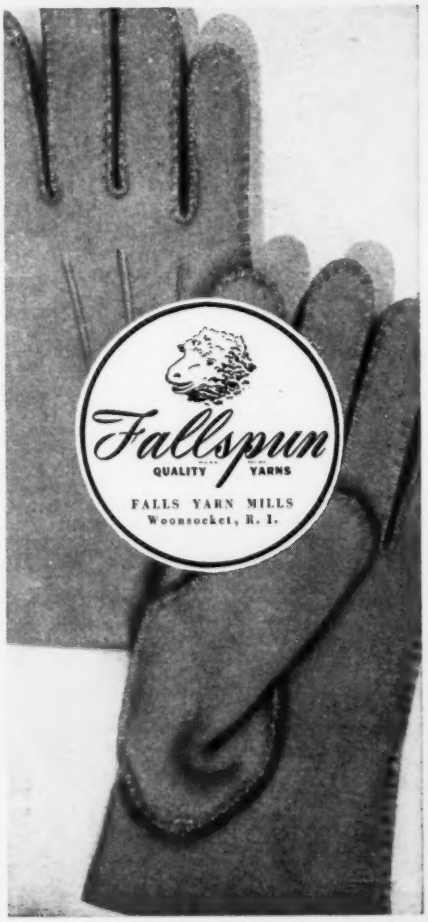

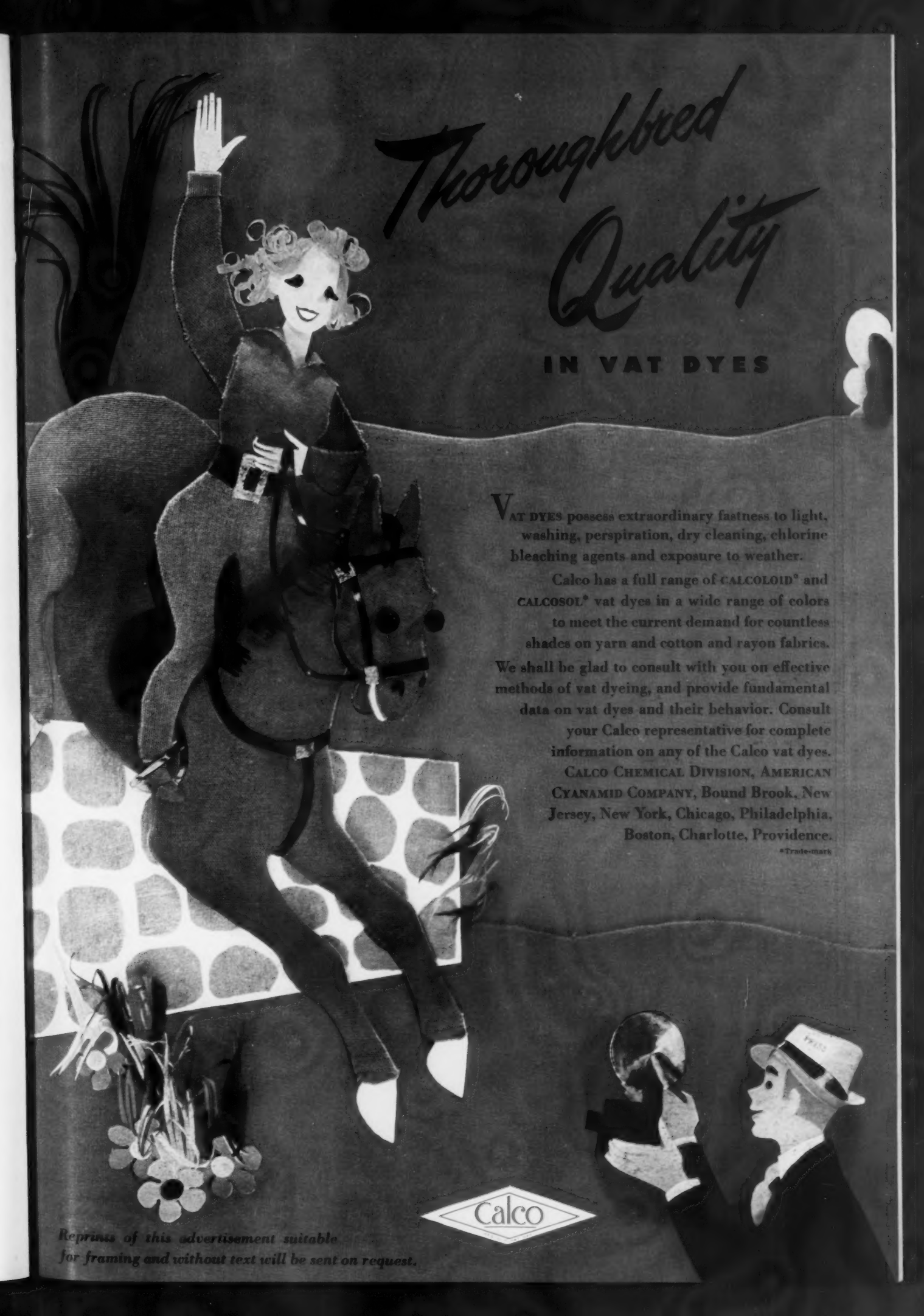
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plant operation as to personnel: watchmen and firemen for every hour of the day and week; and, for the hours of operation, dyer, finisher, mechanic, electrician, dyestuff-weigher, gray-goods checker and handlers, not to mention the usual office workers. The operation and maintenance of steam boilers is also a matter of fixed overhead. The minimum poundage run in the dyehouse should be such as to make the fixed overhead-cost relatively small; or in other words, a dyehouse is not a good investment unless relatively large quantities of goods are to be handled.

Acrylonitriles

(*Continued from page 102*)

molds, and insects. It has good water resistance. It does not support combustion. It has high electrical resistivity.

Vinyon N has good processing properties and can be dyed by using cellulose-acetate-type dyestuffs at the boil. It has high tenacity with essentially no loss in the wet state and it possesses high elastic recovery.

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It is anticipated that Vinyon N will find an important market in hosiery, both full-fashioned and boarded-to-shape seamless types[5]. Other suggested applications include industrial filter fabrics, tapes and braids for electrical insulation, tent fabrics, protective clothing, netting, shoe fabrics, marine lines and twines, surgical sutures, fishing lines, dental floss, sewing threads, sail cloth, awnings, upholstery and umbrella fabrics, chemically resistant hose, gasket packing, and a number of other products.

American Viscose Corp., which makes Vinyon yarn from resin supplied by Carbide & Carbon Chemicals Corp., has also taken out several patents pertaining to products made from vinyl chloride and acrylonitrile copolymer fibers[5, 6, 7]. One patent describes a method of making hollow filaments[6]. The filaments may be converted into staple fiber, carded and spun to produce textile yarns and knitted or woven fabrics which are especially useful in the manufacture of wearing apparel or bed clothing, where protection from cold is an important factor. Mat products made of the fiber are said to have one half the density of those made

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from kapok and to possess superior resiliency.

G. E. FIBER. General Electric Co. has developed fibers from copolymers of acrylonitrile with itaconic esters[8] and also with acrylic esters[26]. They are claimed to have good tensile strength of the order of 40,000 to 50,000 psi. The fibers have excellent pliability, as evidenced from the fact that they can be tied into tight knots without breaking. Also, they have high softening points and excellent resistance to the action of solvents.

These fibers may be woven into highly insoluble and chemically resistant filter cloth. They may also be used in the manufacture of hosiery and other textiles. It is claimed that the textile materials made from these fibers have higher resistance to water, chemicals, and solvents than have silk, cotton, linen, wool, or rayon. The acrylonitrile fabrics are also said to be lighter in weight and considerably tougher and more flexible than the recently developed glass fabrics.

In addition to its uses in making fibers, acrylonitrile is expected to find important applications in the future in the field of plastics.

Card-Stripping

(*Continued from page 141*)

better control of sliver weight provided they have reliable operators; and there have been instances where carders claimed that the burnishing effect of the stripper roll upon the card wire was beneficial.

However, the general trend continues toward mechanical aids in stripping, and the current emphasis seems to be caused by the scarcity of help, the need for improvements in card-room working conditions, the high labor costs, and the high cotton prices. The details of two case-studies indicate how two mills have attempted to cope with these factors, one by installing the continuous strippers already referred to, the other by installing the vacuum stripping system.

CONTINUOUS STRIPPER INSTALLATION. Reduced labor costs and improved working conditions were not the only advantages reported from the installation of continuous strippers. The mill conducted waste tests before and after installation, and the conclusions indicate that there was a gain in spinnable fiber of 1 to 2% depending upon the grade of cotton. The percentages were based upon the pounds of cotton carded. The recovery of spinnable fiber was said to result from the elimination of the roller-stripping system which not only removed short-length fibers but also good spinnable cotton.

The mill reported no loss in quality. In fact, less sliver-weight variations were obtained with continuous strippers because the loading-down of the cylinder was avoided by the action of the stripper. Better carded sliver was reported due to the action of the stripper needles which constantly raised and exposed the cotton fibers to the carding action of flats and cylinder.

Production increases were obtained on all cards, because cards were no longer stopped for stripping.

No tests on comparative power-consumption were obtainable, and grinding cycles were said to have been unchanged.

VACUUM STRIPPING. The system of vacuum stripping as installed at one large southern mill contains two pumps, five tanks, and connecting pipes to the picker and card rooms. The mill states that all labor formerly used for carrying or trucking waste from these departments to the waste house was eliminated by the vacuum waste-disposal system, and that savings were made in the number of stripper operators, since only one is now necessary to handle the vacuum system as opposed to the two operators who formerly performed the roller-stripping operation.

The vacuum system was reported to have improved the working conditions in the card room considerably. The cards were cleaner, since there was no dust such as accompanied the roller stripper. It was believed to be safer because of the absence of ropes and pulleys, and no reduction in quality was reported by the mill.

The system was said to be simple in operation: The operator merely opens the valves which allow the air to pass through the doffer or cylinder; the gears are meshed; and the pipe, fastened to a worm on the card, passes automatically from one side of the card to the other, stripping as it goes.

Better control of the possible light-running sliver after stripping was also said to result from the mill's installation of vacuum stripping. The mill believes that it controls the length of time that the sliver runs after stripping by simply scheduling the number of cards to be stripped at a time. Six cards may be stripped at one time, but the mill preferred four at a time.

During the stripping operation, the card feed is stopped, but the card is allowed to run the stock in process. The sliver which gathers on the floor during the stripping operation is rerun through the openers. Thus, the mill states that none of the fiber is lost

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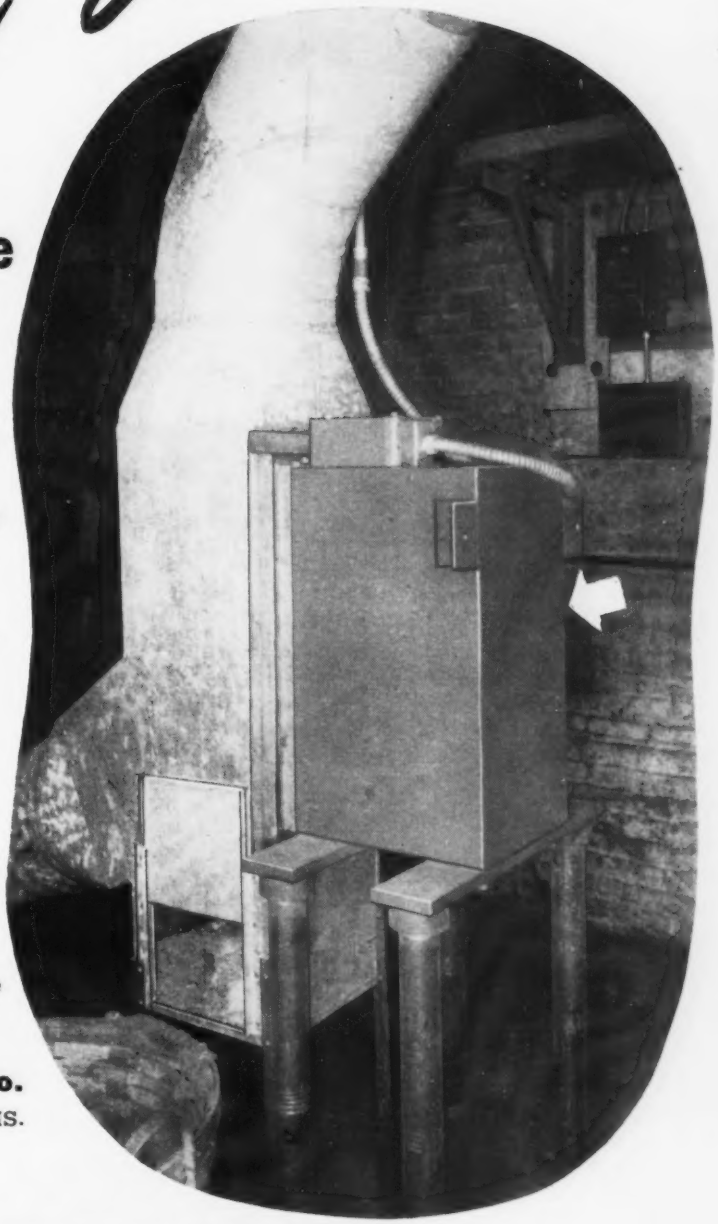

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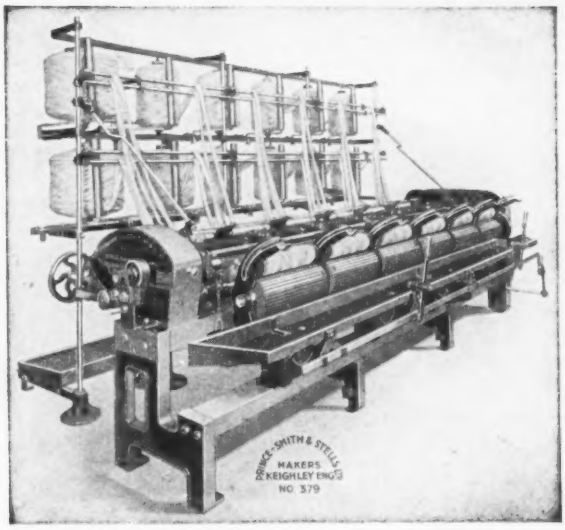

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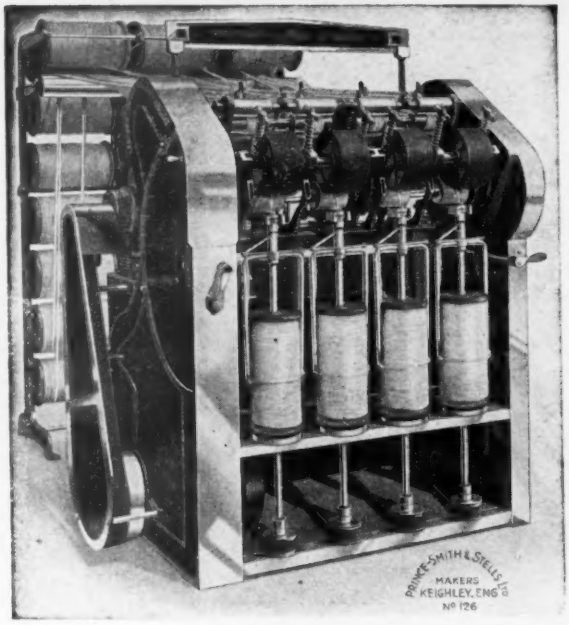

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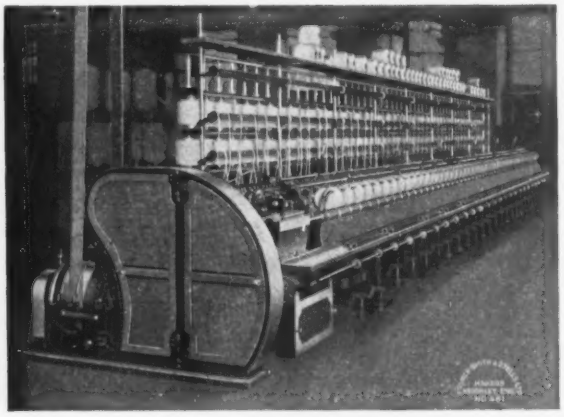

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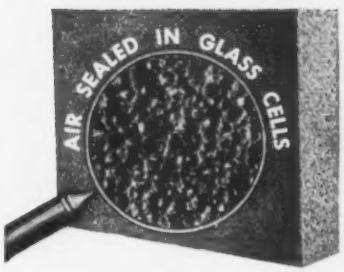

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during this process, except of course the actual strips themselves which are pulled by the vacuum into the pipes and thence to the receiving tanks.

WASTE DISPOSAL. One of the advantages reported by the mill as a result of the installation of vacuum stripping is the improved waste-disposal system. The vacuum system was originally designed for card stripping, waste disposal, and machinery cleaning. The latter function is included in the uses made by the mill and an extensive use of the system for waste disposal has been made.

The system is used for cleaning out picker-room motes, fly, card-room flat strips, fly-waste, and motes. These waste disposal functions are scheduled so that the operator of the tank room can be prepared to keep the various wastes separate. Wastes are usually baled by the one tank operator.

Maintenance of the system was said to be a minor problem, considering the benefits from the vacuum system. One extra pump, however, was installed so that the mill would have at least one tank in operation at all times. Should one fail, the other could be used for stripping while repairs were made.

New Buildings, etc.

(*Continued from page* 123)

panies are well advanced toward completion. A cotton spinning and weaving mill built by Compania Industrial de Atzcapozalco, S. A., and a finishing plant built by Compania Mexicana de Tenidos Acabados y Estampados are being constructed on adjoining lots, separated only by an intervening street. The buildings are designed with structural-steel framing, with sawtooth roof for the spinning and weaving mill, and monitor roof for the finishing plant.

LAYOUT FOR EXPANSION. The gray-goods mill will be equipped initially with 12,500 spindles and 250 looms, of which 50 will be box looms. The plant will be set up to produce combed broadcloth, standard print cloth, and other fabrics suitable for dyeing and printing, as well as some ginghams, checks, and other dyed-yarn fabrics. Layouts provide space for expanding productive machinery eventually to 500 looms.

The finishing plant will contain equipment for bleaching, dyeing, and printing of both cotton and rayon fabrics, with an initial capacity of approximately 10,000,000 linear yards per year.

Both plants will be equipped with the latest types of machinery made by U. S. builders. Cotton preparatory and spinning machinery is being furnished by Whitin Machine Works, weaving equipment by Draper Corp. and Crompton & Knowles Loom Works, finishing machinery by H. W. Butterworth & Sons Co., and boilers by E. Keeler & Sons. Provision for employee services, including clinic, dining rooms, nursery, locker rooms, and toilets will be extremely modern and complete.

Lockwood Greene Engineers, Inc., are consulting engineers for the Mexican plants and made machinery layouts for both. Design and construction of buildings is under the supervision of Reyna & Arozarena, architects and engineers of Mexico City. New York representative for the owner is Loris Textile Corp., 40 Worth St.

Undergound Plants

(*Continued from page* 115)

ADAPTABLE TO ANY SIZE. The unit and size of the plant in the example were selected in order to make a direct comparison with a unit of the same size and type of a conventional plant above ground. However, any size or type of manufacturing establishment is adaptable to an underground location, and the variation would be in detail and not in principle of its design. While this study has been made for textile plants, the underground principle is not necessarily limited to that industry. It is believed that many other categories of industry could be similarly located without detriment to efficiency and cost.

Modern grading and excavation equipment greatly simplify site preparation and make excavation for such a project comparatively inexpensive; but, in general, a uniform sloping contour would be most desirable for obvious reasons as will be indicated in the accompanying illustrations. Many locations and sites possessing desirable conditions exist naturally, but almost any location can be made adaptable by corrective grading of the site. Sites for underground plants should be free of hard-rock formation, high ground water, or wet and swampy conditions. Ability to drain naturally is desirable for discharge of sewers and surface water.

One-floor operations are desirable in an underground plant and are usually most desirable for a textile plant layout, but multi-story construction would be feasible if layouts and operations warranted it. Access, egress, drainage, and other problems are more easily taken care of by a

Efficient and Economical

Efficiency, economy and ease of operation are the principal factors which have established the "W & G" Style 950-CDD2 as the best medium for attaching split tubing or binding to the necks and armholes of ladies' rayon, silk and cotton underwear, and men's athletic shirts and union suits.

New features incorporated in present machines ensure higher production—longer life to parts—lower maintenance costs—greater all-around efficiency.

LUBRICATION SYSTEM
Semi-Automatic or reservoir type facilitates and ensures complete lubrication of all important parts of the machine.

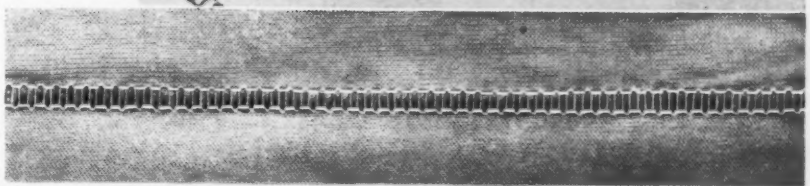
ROTARY DRIVE
An exclusive "W&G" feature. Constructed with three efficient connections, equally spaced, eliminating the usual "dead spot" which usually exists in ordinary crank drives.

DIFFERENTIAL FEED
Virtually eliminates stretching of the material. Produces uniformly flat stitching on all grades of fabrics.

FLOATING POWER
Machine is mounted in cork inserts which act as vibration absorbers contributing to quiet operation even at high speeds.

NEEDLE THREAD CONTROL
Threading greatly simplified by scientifically located eyelets ensuring proper handling of threads.

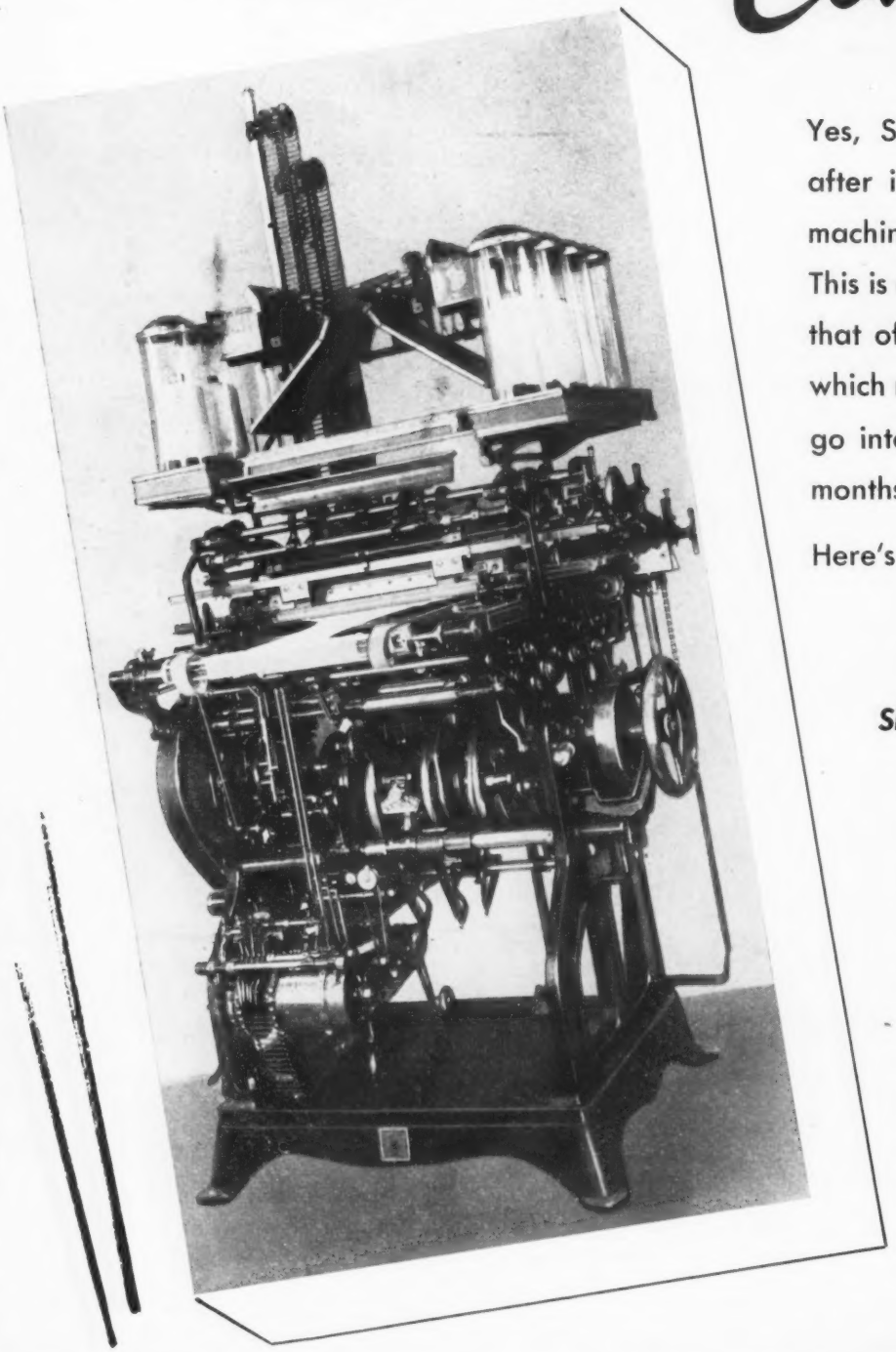
LOOPER THREAD CONTROL
The threading means for the loopers is simple and accessible to the operator. Improved take-up and pull-off ensures uniformity of stitching.



Send for Illustrated Descriptive Bulletin No. 811

WILLCOX & GIBBS SEWING MACHINE CO.
214 West 39th Street, New York 18, N. Y.

We'll drop this WILDMAN into your plant *Complete*



Yes, Sir!—In a very few hours after it reaches your plant, this machine is producing stockings. This is quite a different story from that of multiple-section machines which must be erected and do not go into production for weeks or months.

Here's another big feature of the

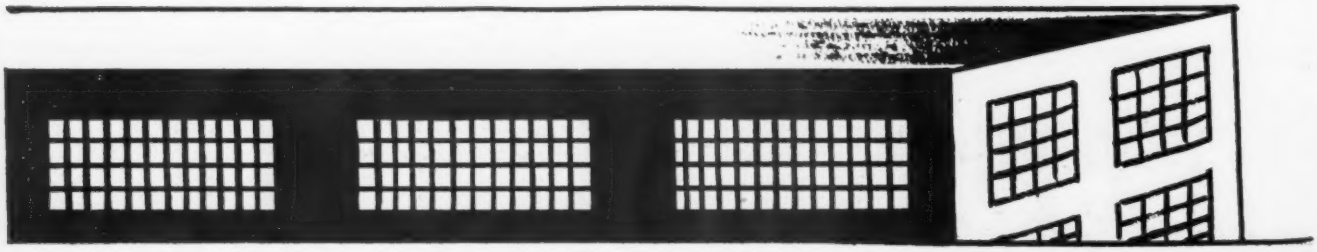
WILDMAN

Single-Head, Single-Unit Full-Fashioned

HOSIERY MACHINE

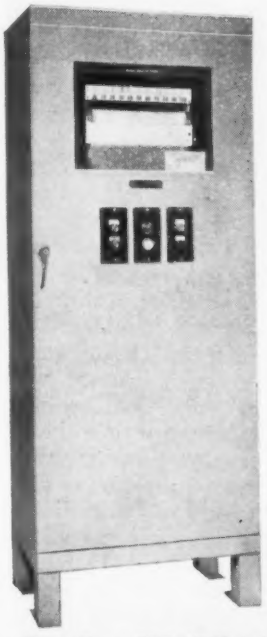
It knits the entire stocking in one operation, perfect from top to toe. No change-overs, no stopping and starting, no bad matching, no bad results from temperature changes—a constant hazard with multiple-section machines.

WILDMAN MFG. CO., Norristown, Pa.



A *New* TRIPLE RANGE MOIST-O-GRAPH

acetate, viscose or blends—at the turn of a switch------



Recording Moist-O-Graph Controller

THE new Moist-O-Graph for Rayon and synthetics gives you all the advantages that 400 users are obtaining today *plus full flexibility*. Any synthetic . . . any blend is perfectly slashed when moisture content is electronically controlled by the Brown Moist-O-Graph.

Just turn the Range Selector Switch in the new Brown *Triple Range* Moist-O-Graph to control regain of acetate, viscose or blends on your slasher.

Suppose the last warps run were acetate and the next are to be viscose. The only instrument adjustment necessary is one switch position—no other change is needed.

The Brown Moist-O-Graph maintains uniform slasher output. It increases weave room production by supplying uniformly conditioned warps. Warps are never too wet, never too dry.

The complete story of Moist-O-Graph Slasher Control for cotton as well as synthetic is contained in Catalog 9305. Send for your copy today.

THE BROWN INSTRUMENT COMPANY, a division of Minneapolis-Honeywell Regulator Company, 4509 Wayne Avenue, Philadelphia 44, Pa. Offices in all principal cities.

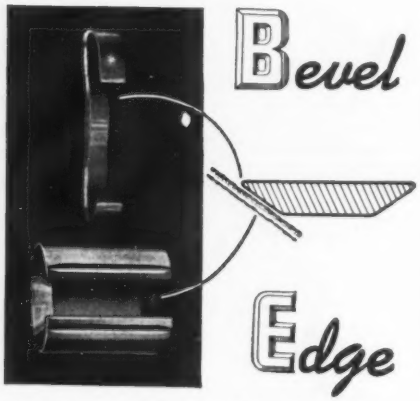
Toronto, Canada
Amsterdam, Holland
Brussels, Belgium
London, England
Stockholm, Sweden

BROWN MOIST-O-GRAPH

U. S. RING TRAVELERS

A Style and Size for Every Textile Fibre

"U. S." offers a COMPLETE Traveler Service—a complete line suited to every fibre and operation—complete engineering service assisting you in traveler selection and maintenance for maximum spinning and twisting production.



Exclusive "Bevel-Edge" design offers numerous advantages

These famous anti-friction travelers yield the following benefits:

1. **Less loading up of travelers on cotton.**
2. **Less fly waste on woolen.**
3. **Minimizes split ends on rayon, and silk.**
4. **Much lower end breakage—frequently 8 to 10 fewer per hour.**
5. **More uniform yarn.**

U. S. RING TRAVELER CO.
AMOS M. BOWEN, President & Treasurer
Providence, Rhode Island

"U. S." Men give you Prompt Service!

W. P. VAUGHAN-W. H. ROSE,
Greenville, S. C.—Box 792—Phone 3031

O. B. LAND,
Athens, Georgia—Box 1187—Phone 478

L. H. MELLOR, JR.,
Mid-Atlantic States (Address Providence)

H. R. FISHER,
Concord, N. C.—Box 83—Phone 8366

C. W. SMITH-H. J. SMITH-J. T. GREENLAW,
Providence—Gaspee 0100

single-story design but could be handled in a multi-storied structure with little difficulty.

SIMPLE CONSTRUCTION. The construction recommended consists of waterproofed, reinforced-concrete sidewalls and floors with a concrete flat-slab ceiling designed to support at least four to five feet of earth fill on top. Convenient portals with double doors on one side, and emergency exits on the opposite side to serve also as ventilating and air-intake shafts, are recommended.

An underground structure lends itself to economical construction because of its simplicity. Because of conditions at the time of writing, the scarcity of materials must be taken into consideration. The type of structure here described would use practically no critical materials and would use mostly a material of one type; i.e., concrete.

As mentioned before, the use of modern earth-moving equipment makes this item a small part of the building cost. Thus, the cover for sides and roof is provided at little cost.

Other items that tend to reduce the cost of an underground structure as compared to a building above ground are: elimination of many miscellaneous items that cause the introduction of numerous sub-contracts with accompanying profit and overhead charges; expensive outside fire-protection requirements are avoided, as are yard improvements and fencing; insulation for air and temperature control would not be necessary; all mains and conduits would be laid on the roof slab, thus eliminating hanging or trenching; the footings would probably all be at the same depth, thus effecting a considerable saving in foundation work; expensive exterior architectural treatment would not be necessary (and this last saving would be considerable).

LOW MAINTENANCE. The fact that an underground building is not exposed to the elements would result in a large saving in the maintenance costs usually attendant to an above-ground structure. This would result in the elimination of outside painting, patching, gutter and down-spout repair, and roof maintenance. Such a building would not be subject to vibratory action because it would be braced from all sides.

While uniform and constant temperature and air control are easily attainable in a totally enclosed plant built above ground, this control is more easily attainable in any underground structure. The fact that the building is covered with a natural insulating material would insure complete independence from outside weather conditions. Sudden changes in weather would not affect the air-conditioning system, and extreme conditions would not have to be provided for. Solar heat would not effect the structure in any way. The high cost of cooling due to losses in walls, roofs, and openings, such as is prevalent in structures above ground, would be substantially lowered. As heat is generated by the machinery, lighting, and human occupancy, the necessary heating and cooling required in any totally enclosed plant would be simplified and more economical.

NO HEATING PROBLEM. Provision for steam, where processes require it, can easily be included in an underground design. Steam for heating purposes would be entirely eliminated by the employment of small electrically heated units to supply heating during idle periods. Improved slashing and drying equipment, using infrared heat in lieu of steam, would substitute for steam in these processes. The saving in the cost of steam-generating equipment, with its attendant operating problems and expense, will be appreciable in plants where steam is not vital to their processes.

With all equipment set on noise-reducing pads and using rubber-tired trucks and mechanical conveying equipment, the noise factor so prevalent in above ground structures would be reduced to a large extent.

A subterranean plant should be entitled to a reduction in insurance rates. Aside from its safety factor against the hazards of war, it would be entirely fireproof as a structure. The type of product being produced would naturally enter into its value as a risk; but, even so, it would fare better than a plant making the same product above ground. Stock fires could easily be extinguished by the use of automatic sprinklers, and chances of fire from outside sources would be entirely done away with. Storms of any variety would not effect it and flood damage would be no cause for worry provided even the smallest amount of thought is given to proper site selection. Mob violence and the danger of vandalism would be almost entirely prevented. Most important of all, the maintaining of uniform and controlled conditions of air and light would result in a healthy, happy, and productive worker.

DISADVANTAGES, ALSO. As with anything else, there would be certain disadvantages to an underground mill. For one thing, the manufacturer would lose a certain amount of adver-

FRIEND OF THE PLANT OWNER... WHO HAS A WET SURFACE MAINTENANCE PROBLEM

The Damp-Tex system of painting kills rust, rot, fungus and bacteria. Stops deterioration. Can be applied on any paintable surface, *wet* or dry, with equal ease and efficiency... changing dingy, rough light-blotter interiors into glistening porcelain-like beauty. One coat covers. Resists acid, alkali, corrosive gases and oxidation. Dries overnight without flavor-tainting odor into waterproof film. Comes in white and colors. Write for our trial offer.

LIQUID PORCELAIN-LIKE
DAMP-TEX FOR
WET
OR DRY
SURFACES

STEELCOTE MFG. CO. • ST. LOUIS, MO.

Canadian Manufacturer—Standard Paint & Varnish Co., Windsor, Canada

"NO SMUDGING
in our textile printing"

"CARBOMATIC" INFRA-RED BURNERS HOUSED IN BOX

BY USE OF

"CARBOMATIC"
INFRA-RED RADIANT HEAT
Dryers

• "Smudging is prevented—before the goods reach the first roll," comes the unvarying reports from all mills where the textile printing presses are equipped with Carbomatic Infra-Red drying units.

Moreover, the color fastness is improved, crocking avoided, and production increased by use of Carbomatic Infra-Red. Any desired temperature is maintained. Carbomatic complete drying units eliminate need for steam. Operation throughout is fully automatic.

Carbomatic Infra-Red is setting up new efficiency records in every type of heating application found in textile mills! Gas-fired or electric lamp units.

Write for informative Bulletin TW-3

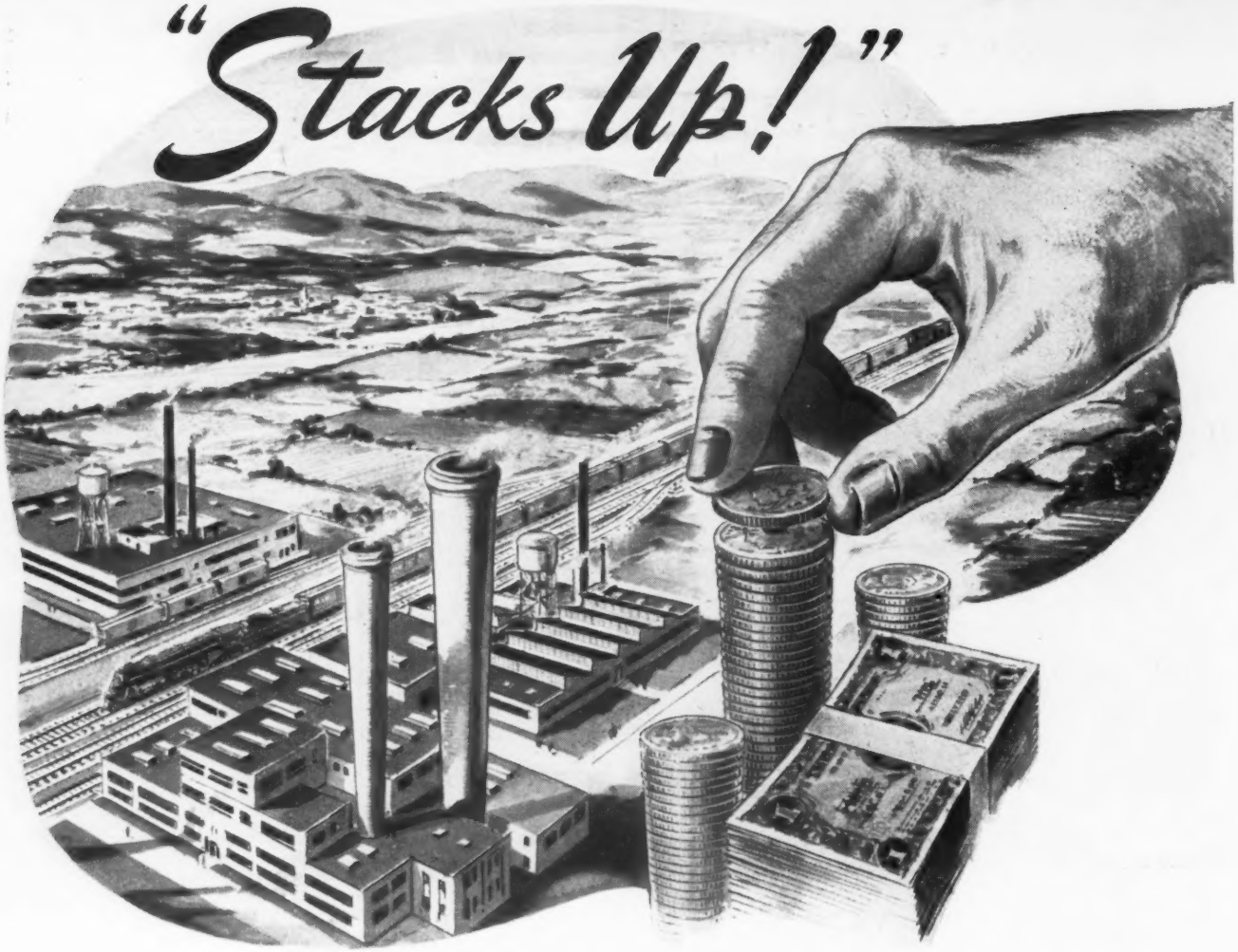
CARBOMATIC
CORPORATION • *INFRA-RED DIVISION*

117 W. 63rd STREET
NEW YORK 23, N. Y.

IF IT'S INFRA-RED — BE SURE IT'S

IN CANADA
Canadian Textile Engrg. Ltd.
980 St. Antoine St., Montreal

"Stacks Up!"

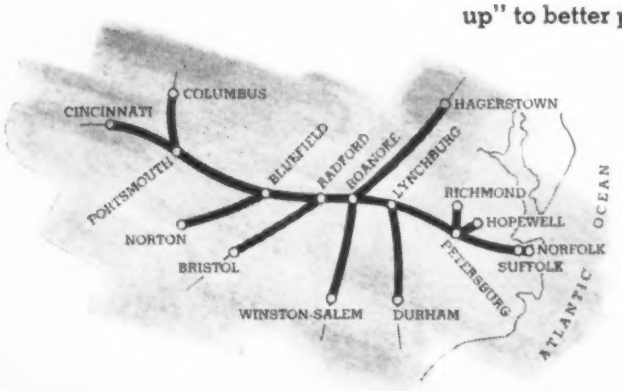


The territory served by the Norfolk and Western provides at hand the elements necessary for successful plant location. It "stacks up". It is a land of bountiful supplies and raw materials . . . of unlimited power from bituminous coal and an abundant water supply. It is a land of intelligent native labor, friendly tax policies . . . of pleasant communities in a pleasant climate.

Throughout this land, the N. & W. provides efficient, precision rail transportation that places your plant close to the nation's markets. And through the year-round, ice-free Port of Norfolk, with N. & W. rails to shipside, you have quick access to the markets of the world.

Investigate N. & W. territory for a plant location that "stacks up" to better production, better distribution and bigger profits.

Ask the N. & W. Industrial and Agricultural Department at Roanoke, Va., for detailed, confidential information about any section served by the Norfolk and Western.



Norfolk and Western RAILWAY

FOR BETTER PLANT LOCATIONS

INSTALL THE QUALITY

FLUORESCENT FIXTURES THAT ARE

Easiest to Maintain

Not necessary to remove a single nut or screw to change starters or lamps!
Miracoat finish steel reflector wipes clean in a jiffy!
Reflector demountable by a twist of the wrist.

FOR textile plants, here's the HF-235, 235-watt *completely Sylvania-made fixture!* Typical of all Sylvania fixtures, it's extremely simple to maintain—quick simplified servicing means a great saving to you! The best in engineering and quality—top-housings of heavy gauge steel assure long, trouble-free life! Exclusive Miracoat finish—complete protection of metal surface from humidity plus unequalled light reflection factors!

There's a Sylvania industrial fixture just *made* for *your* plant! See your Sylvania Distributor or write *Sylvania Electric Products Inc., Salem, Massachusetts.*

REMEMBER ALL LAMPS IN SYLVANIA FIXTURES ARE SYLVANIA-MADE... THEREFORE OF THE HIGHEST QUALITY
These lamps have rugged qualities, brilliance and the many refinements that far surpass requirements.

SYLVANIA ELECTRIC

"FLUORESCENT AT ITS FINEST"

FOR FACTORY, OFFICE, STORE, HOME

STRIPES
•
CHECKS
•
PLAIDS

Use acetate fast colors on spun or filament yarns. We package dye them in large batches. Delivery to you in the wound form.

★

Atlantic Rayon
CORPORATION

Dyers and Converters of Synthetic Yarns for All Industries

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★

tising value obtainable from an attractive plant built in a prominent place. Of course, there would be the immediate and general objection to a very radical and unusual idea. This same attitude was also directed against windowless buildings when first introduced. The other objections are those attached to any totally enclosed plant, one being possible claustrophobia reactions from some operatives subject to a sense of oppression. Another is possible trouble from power failure. The first has not proved to be a serious problem with employees in windowless plants, and the latter is easily solved by simple emergency-light installations. No doubt, many other objections will be raised, and the writer will welcome them but believes that all can be eliminated with a little common sense.

COST FACTORS. In preparing a comparative estimate of cost of the underground unit with conventional construction, as shown in the panel, two types of plants were selected: A, an underground plant as shown in the accompanying illustrations, and B, a conventional-type mill of the same floor area and productive capacity as A, constructed above ground. These estimates are based on a Southern location and costs prevailing today, the bare building to be ready for occupancy but excluding lighting, air conditioning, sprinklers, plumbing, and other mechanical items common to either type. The savings on the cost of mechanical items, for reasons stated above, will tend to equalize the overall cost between the two types of buildings.

The subject of this study should be of interest to industry because of its operating advantages, greater productive efficiency and lower manufacturing cost. It should be of interest to government as a means of insuring the production of vitally needed materials should another war occur.

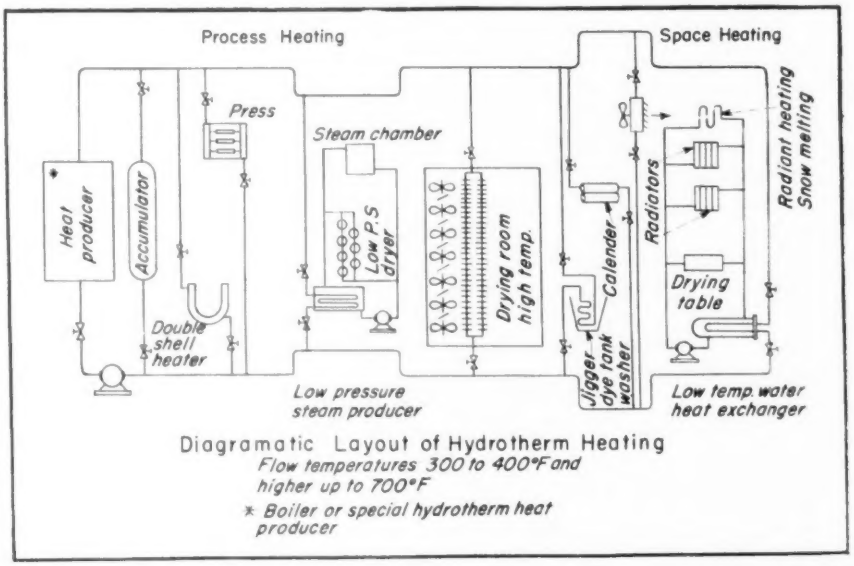
TEXTILE EQUIPMENT NEWS (Continued from page 150)

Hot-Water Heating Saves Fuel, Maintenance

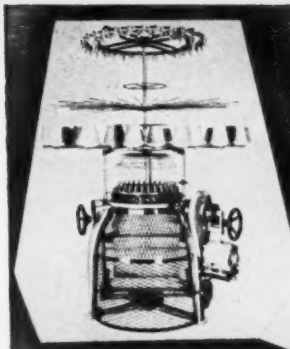
High-temperature-fluid heat- distribution equipment has been announced by American Hydrotherm Corp., 215 East 27th St., New York 16. Using water at 300 to 400° F. as a heat carrier, the Hydrotherm system utilizes conventional steam boilers, special boilers, or direct-connect generators heated by live or exhaust steam. The system is entirely inclosed, and the only possible losses are those caused by radiation from insulation, it is reported.

The system is said to permit use of smaller boilers and piping than those required for steam systems and to eliminate necessity for pressure-reducing valves, traps, strainers, condensate-handling equipment, water-treating equipment, and decentralized temperature-control apparatus.

Hydrotherm piping can be installed without consideration for variations in level; the system is said to have a longer life than other systems under similar operating conditions and to save approximately 25% on fuel costs while practically eliminating repair and maintenance.



Equipment and accessories required for high-temperature-fluid heating are illustrated by this diagrammatic sketch. (Hydrotherm)



Supreme
Model
R.O.

"For Jacquard-Type Knitting"

PATTERN WHEEL MACHINE for
Brilliant Intricate Colorful Designs

The heart of any knitting machine will be found in its knitting elements system.

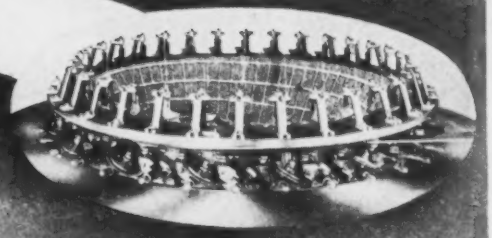
The knitting elements of Supreme Model RO have been carefully designed to meet the demands for versatile fancy pattern "Jacquard-Type" knitting.

Here are the features that make it possible:

- Double Fork sections with "Flick of the Thumb" Rotary Tuck or Knit Selectors.
- Needle raising wheel cams with built-in hardened tucker cams.
- Precision pattern wheels for patterns of striking beauty.
- Simple quick change to lay-in, tuck and welt or lace cloth.

Innovations in styling and novelty items are easily accommodated. Illustrated is 24"—32 feed type. Other sizes and feeds available.

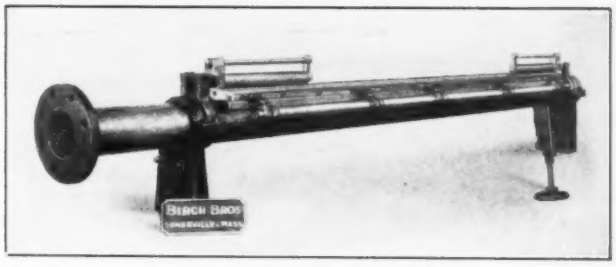
Write quickly for the facts. Better still, see the Supreme Model RO in action at the Supreme factory or showrooms.



SUPREME
KNITTING MACHINE CO., INC. Dept. OS
105 JOHNSON AVE., BROOKLYN 6, N. Y.
Southern Representative: Morris Spelman
[illegible]

EXTRACTION

Extract your Rayons, Cottons, Woolen and Worsteds, and Pile Fabrics *without damage* by VACUUM, using our Patent Re-Enforced Adjustable Slot Vacuum Extracting Box fitted with Automatic Ring Type Slot Seals.



Excellent results obtained on all types of rayons and blends at speeds up to 80 yds. per min.: on cottons up to 100 yds. per min.; on woolens and worsteds 35 to 45 yds. per min.

May be installed in Scutchers; Cloth Openers; Continuous Open Width Machines, as Crabbs, Dyeing or Soaping Machines; before Dry Cans or Tenters.

For the BEST IN EXTRACTION write

BIRCH BROTHERS, INC.

32 Kent Street
SOMERVILLE, MASS.
Phone: Prospect 3512

HAROLD W. BIRCH
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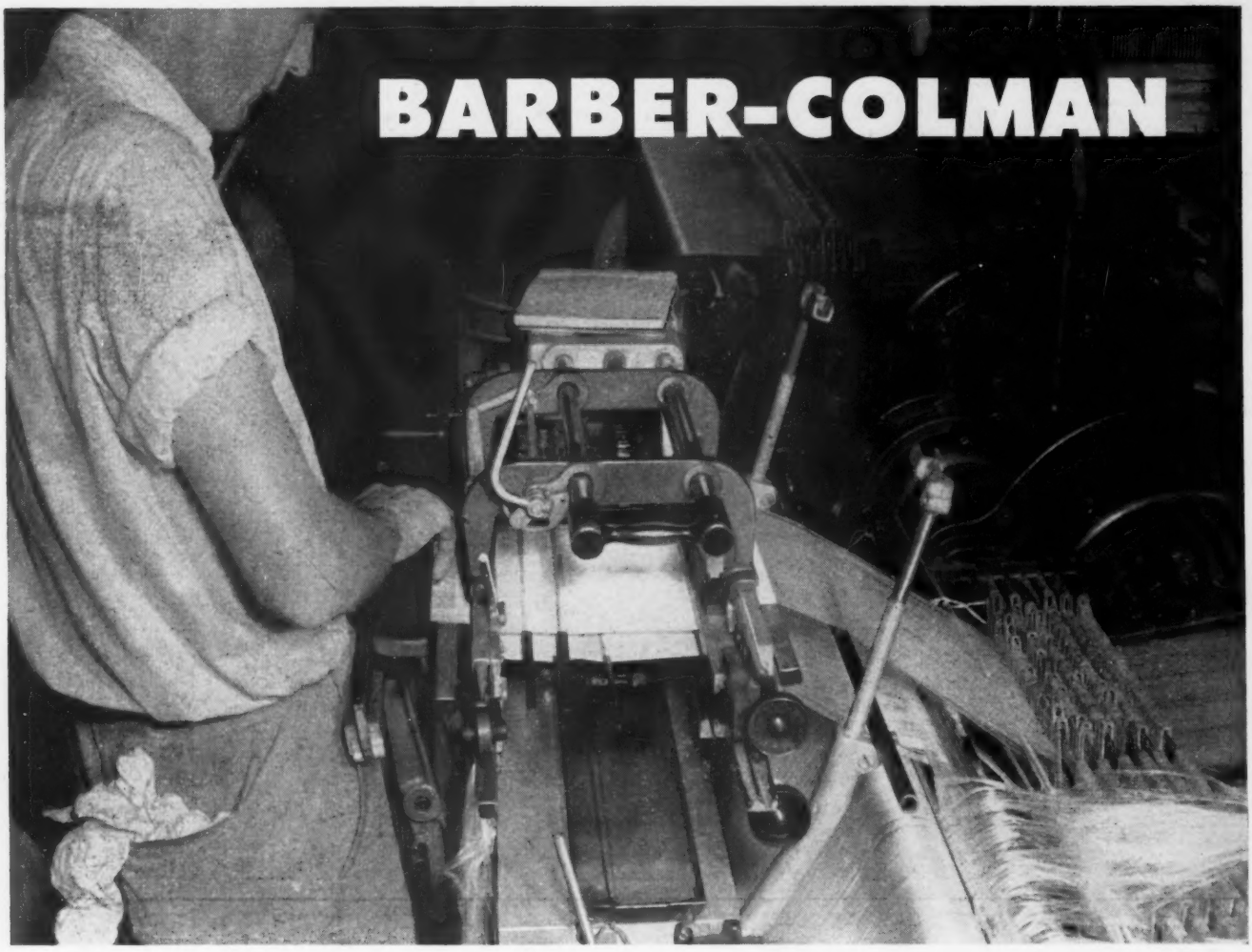
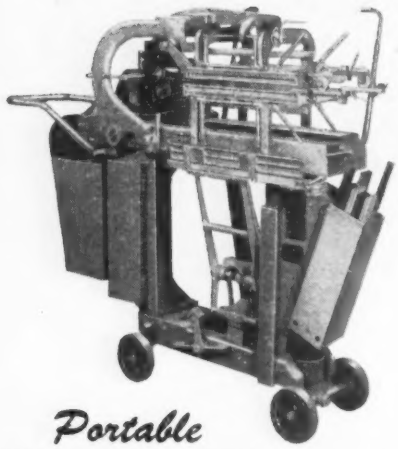
Greenville, S. C.



PORTABLE WARP TYING MACHINES MAKE SUBSTANTIAL COST SAVINGS IN SMALL MILLS



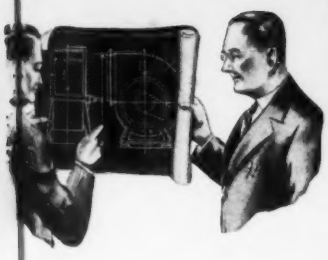
Portable
WARP TYING MACHINE

Many of the smaller mills are finding that a Barber-Colman Portable Warp Tying Machine is a profitable investment — even though its full-time capacity is not needed or used. This machine offers a fast and accurate means for tying-in new warp *at the loom.* It can be handled satisfactorily in confined and hard-to-reach spaces and in loom alleys as narrow as 12". An inexperienced hand can learn to operate it capably in a comparatively short time. Overall production capacity of the machine averages 3500 to 4500 ends per hour, varying with the sley of the warp. On high sley warps, production may run as high as 5500 ends per hour. Interchangeable knotter units enable the machine to tie a wide range of counts, and models are available to handle cotton, wool, silk, or synthetics. Tying is accurate and uniform and so much more efficient than common hand methods that the machine will pay for itself quickly in cost savings. *For full details and specific recommendations for your mill, consult your Barber-Colman representative.*

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • DRAWING-IN MACHINES

BARBER-COLMAN COMPANY
ROCKFORD • ILLINOIS • U. S. A.
FRAMINGHAM, MASS., U. S. A. GREENVILLE, S. C., U. S. A. MANCHESTER, ENGLAND

Keeping COSTS DOWN -PERFORMANCE UP!



SEE YOUR CONSULTING ENGINEER *About Air Conditioning!*

He's the one who knows sound principles of air conditioning—duct layout and equipment to give you best air performance at least cost.

Fine air conditioning need NOT be expensive! You may require large area ventilation, heating and humidifying, cooling and dehumidifying or constant air cleaning —yet, in any case, there is a "Buffalo" Air Conditioning Cabinet engineered *particularly* to handle your need at small fan and pump power-cost, negligible maintenance.

And the comfort and health values are enormous! Sickness and absenteeism decline, production takes an upward curve.

Complete facts on "Buffalo" Air Conditioning Units for every purpose are yours on request. Simply write us.

BUFFALO FORGE COMPANY

184 MORTIMER ST. BUFFALO, N. Y.

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

"Buffalo"

AIR CONDITIONING CABINETS

If you have HIGH TIDE...

. . Or a FISH POND in your BASEMENT . . .

Use STONTITE

Return the coupon for FREE FOLDER . . . no obligation.

STONHARD COMPANY

Building Maintenance Materials

Serving Industry Since 1922

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Term. Com. Bldg., Phila. 8, Pa.
Send us a free copy of the folder including details about STONHARD STONTITE.

Firm.....
Mr.....Title.....
Address.....
City.....Zone.....State.....

News of the month

May Control Tariff Cuts. Businessmen are to get a greater chance to be heard on effects on tariff cuts made under the Hull reciprocal trade program. That is the significant news in President Truman's executive order Feb. 25 reorganizing the Government's administrative machinery for handling this program. That order stipulates that each reciprocal trade agreement shall have in it an "escape" clause permitting the President to modify or withdraw tariff concessions made under the trade program if they prove harmful to domestic business.

Export Control of Cottons Ends. Export licensing controls over cotton broad-woven goods were removed Mar. 15. This will permit free shipment abroad of some 40 items previously under export license. The move was made possible, the Commerce Department said, by rapidly increasing textile production not only in this country but also in such prewar producing countries as Japan, Germany, France, and Italy. This increase in supplies is expected to lessen the foreign demand that might otherwise drain United States' supplies.

Wage Raise in South. Some 3,250 non-union employees of the White Oak and Revolution Textile mills operated by the Cone interests in Greensboro, N. C., have been given a 7½% wage increase, and a similar increase was offered to 1,700 employees of the Proximity Mills and Print Works, organized with the Textile Workers Union of America (CIO). The increase, the company stated, was to cover the higher cost of living and will be maintained unless profitable operations of the mills do not permit, in which case adjustments will have to be made. This is part of a wage increase which affected large areas of the South in February and follows the New England advance reported last month.

Discontinues "Crown Tested" Plan. American Viscose Corp. on Feb. 6 announced its plan to discontinue the Crown Tested Plan, which it has maintained since 1930 to encourage and assist in continual improvements in rayon-fabric serviceability. The company's announcement states that: "The 'Crown' Tested Plan has completed its job; and we are now discontinuing it. Many of the trade's leaders are now doing their own quality control, not for altruistic reasons but because they believe it is good business. Now that a foundation has been laid, we are turning over the job of quality control to the textile producing and converting trades, to whom we believe this job rightly belongs." The former "Crown Tested" Department will henceforth be known as the Converting Trade Relations Department.

Nylon Prices Reduced. A general price reduction on all nylon yarns, the fifth reduction since the first price list was issued in January, 1940, was made effective on Feb. 17 by E. I. du Pont de Nemours & Co. The new prices represent an average reduction of 6%, ranging from 5¢ to $1 per pound. Under the new schedule, 30-den. 10-fil. yarn, which was introduced in the hosiery field seven years ago at $4.27

Textile Calendar

National Knitted Outerwear Association, annual meeting and banquet, Hotel Astor, New York, Mar. 20, 1947.

Textile Operating Executives of Georgia, general meeting, Georgia Tech., Atlanta, Ga., Mar. 22, 1947.

Delta Kappa Phi, annual convention, University Club, Boston, Mass., Apr. 12, 1947.

Alabama Cotton Manufacturers Association, annual convention, Buena Vista Hotel, Biloxi, Miss., April 13 to 15, 1947.

National Association of Hosiery Manufacturers, annual meeting, Hotel Claridge, Atlantic City, N. J., Apr. 28, 1947.

Hosiery Industry Conference, Hotel Claridge, Atlantic City, N. J., Apr. 28 and 29, 1947.

Knitting Arts Exhibition, Convention Hall, Atlantic City, N. J., Apr. 29 to May 2, 1947.

American Cotton Manufacturers Association, annual meeting, Sheraton-Bon Air Hotel, Augusta, Ga., May 1 to 3, 1947.

Phi Psi Textile Fraternity, national convention, Hotel Charlotte, Charlotte, N. C., May 2 to 4, 1947.

Second National Plastics Exposition, Coliseum, Chicago, May 6 to 10, 1947.

Cotton Manufacturers Association of Georgia, 47th annual meeting, Sheraton-Plaza Hotel, Daytona Beach, Fla., May 15 and 16, 1947.

A World Trade Week, sponsored by Chamber of Commerce of the U. S., May 18 to 24, 1947.

International Exposition of Textiles, Grand Central Palace, New York, June 2 to 7, 1947.

ASTM, annual meeting, Atlantic City, N. J., June 16 to 20, 1947.

PRODUCTION SCHEDULES CAN SLIP ON SOAP!

Not by bodily tripping up your workers, but through the impaired manual efficiency caused by a hand cleanser with an overdose of skin-injuring alkali.

With Lan-O-Kleen this isn't so! Lan-O-Kleen, a powdered soap, contains no harsh ingredients to harm the skin. Wherever soil and dirt dig deepest, Lan-O-Kleen loosens them with gentle thoroughness. Does it with the sponge-like action of its corn-meal granules—not by grinding attack on the skin surfaces.

Super-fatted with a generous degree of lanolin, Lan-O-Kleen gives extra protection against the skin drying out—leaving hands with a pliable, ready-to-work feeling.

Products That Promote Sanitation

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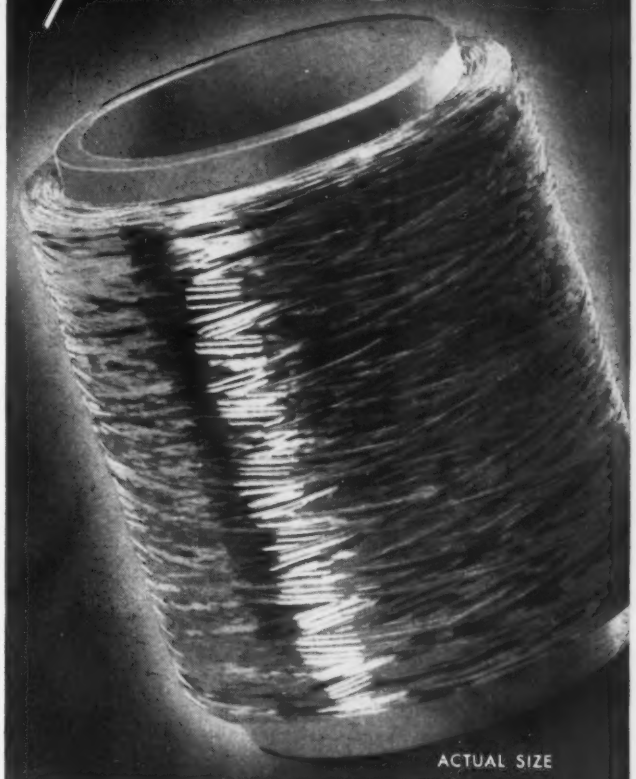
★ BRANCHES IN PRINCIPAL CITIES OF THE UNITED STATES AND CANADA

Cleansing Disinfectants—Insecticides—Kotex Vending Machines—Paper Towels—Automatic Deodorizing Appliances—Liquid Soaps

ALUMINUM *Yarn and Thread*



ACTUAL SIZE

IMMEDIATE DELIVERY NEW LOW PRICES

The ideal metallic thread for twisting, braiding and weaving in all types of textile fabric.

- Thread size: 1/50" or 1/32". Thickness: .0015. Precision wound on 2" tubes. Traverse 2 3/4".
- Brilliant colors: Red, Blue, Green, Gold and Silver. Acetate coated on two sides. Also plain Aluminum.
- Non-tarnishable and non-odorous.

Send your order today for quick delivery.

METALLIC YARNS *Inc.*

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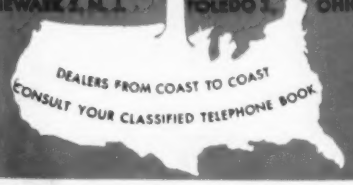
MAKE ONE BEARING
OUTLIVE TWO!

LUBRIPLATE Lubricants actually condition bearing surfaces and stop progressive wear. They prevent rust and corrosion and resist steam, hot water, many acids and other adverse conditions. LUBRIPLATE is in a class by itself. Use it and make one bearing outlive two. Write or phone for facts and figures.

℞ FOR YOUR MACHINERY

No. 2 — Ideal for general all type lubrication, ring oiled bearings, wick feeds, sight feeds and bottle oilers.
No. 8 — Because of high film strength and long life it reflects outstanding performance in most types of enclosed gears (speed reducers).
No. 107 — One of the most popular grease type products for general application by pressure gun or cups.
No. 70 — For a wide range of grease applications, especially at temperatures above 200 degrees F.
No. 130-AA — Known nationwide as the superior lubricant for open gears, heavy duty bearings, wire rope, etc.
BALL BEARING — This is the LUBRIPLATE Lubricant that has achieved wide acclaim for use in the general run of ball and roller bearings operating at speeds to 5000 RPM and temperatures up to 300 degrees F.

LUBRIPLATE
FISKE BROTHERS REFINING CO.
NEWARK 5, N. J. TOLEDO 3, OHIO



and was lately $2.75, now sells at $2.55. The 40-den., 13-fil., which cost $3.52 in 1940, dropped 10¢ to $2.15. The 15-den. single filament was reduced from $6.50 to $5.50. It is understood that these new prices were made possible by technical advancement and increased volume of production.

Private Investigation of Germany Ends. American and British occupation authorities in Germany are closing the doors to further inquiry into German technology by private industrial investigators. The news was a jolt to the Commerce Department's Office of Technical Services, which has been sponsoring such investigations in the British-American Zone. OTS had heard nothing prior to Feb. 6, when the State Dept. asked whether a Mar. 31 deadline would be satisfactory. OTS is now requesting the State Department to arrange that American private investigators and the OTS staff at present in Germany be permitted to remain there until June 30. OTS is willing that no more investigators be sent there after Mar. 31. OTS believes that the State Department will go along with such a plan.

Conference on Sizing. A conference on textile sizing will be held in Charlotte May 2 by the Textile Research Institute with Clemson College and North Carolina State College schools of textiles participating as co-sponsors. The meeting will be held at the Hotel Barringer.

Rayon in Bonded-Fiber Webs. Viscose-rayon staple is finding extensive use in the manufacture of several different types of bonded-fiber webs in many fields where their unusual properties offer various special advantages, according to American Viscose Corp. Among their industrial forms are ribbons, tapes, filters, lens-wiping tissue, bindings, interlinings, insulation covering, tags, wrappers, containers, and bags. In the household they are found such items as wall coverings, curtains, drapes, napkins, table cloths, towels, and wiping cloths. Bonded-fiber webs are essentially multiple webs of rayon or other fibers in which the fibers are bonded together by fibers which are potentially adhesive or by an additional adhesive, applied by printing, spraying, rolling, or immersion.

Congress Seeks to Control Flammable Textiles. Four government departments and agencies have been asked by Congress to submit their views on proposals to outlaw wearing apparel and other fabrics which are so inflammable that they may be a hazard to human life. Bills on the subject have been introduced by Sen. Homer E. Capehart, R., Ind., (S. 353) and Rep. Wat Arnold, R., Mo., (H.R. 1111). They have been referred to the House and Senate Committees on Interstate & Foreign Commerce. Both committees, as the initial step, have asked for reaction from the Commerce Department, Justice Department, Interstate Commerce Commission, and Federal Trade Commission. The bills would ban from interstate commerce any article of wearing apparel deemed so highly inflammable as to be dangerous when worn by individuals and any fabric deemed equally dangerous, unless clearly marked "Flammable—Dangerous When Worn." Fabrics would be considered safe if, when tested by the Commerce Department, they failed to catch fire, or, if set afire, burn without a flame at a rate not faster than five linear inches in six seconds. Enforcement would be placed in the Federal Trade Commission. Penalties would range up to a maximum of $10,000 fine and three years imprisonment. Hearings were current in March with many textile interests opposing the legislation.

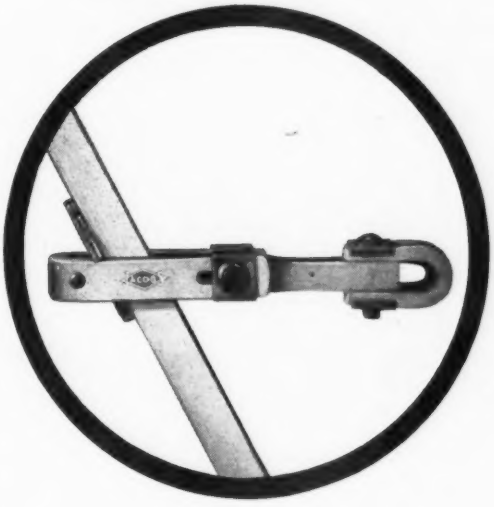
Anti-Stream-Pollution Legislation. The 20-year fight for federal controls to reduce stream pollution is coming up in the 80th Congress with powerful backing. Four bills already have been introduced—three in the House, one in the Senate. Two of the House bills (by Reps. Charles Elston, R., Ohio, and Brent Spence, D., Ky.) are identical to a measure sponsored in the Senate jointly by Senators Taft and Barkley, the majority and minority leaders. Rep. Karl Mundt, R., S. D., has introduced his own version. It is a re-write of his earlier drafts. Mundt claims that the rewrite will prove satisfactory to industrial, governmental, and conservation interests who have disagreed violently in the past. All of the proposals would set up water-pollution controls in the U. S. Public Health Service and place broad powers on the Surgeon General.

Ask for 1947 Census. Bills have been introduced in both houses of Congress to authorize censuses of business and manufactures to be taken next year, covering 1947. The legislation has the backing of most media and marketing organizations. Sponsors of the legislation point out that it would provide vital marketing data by mid-1948, when the seller's market may be largely in the past. Except in agriculture, where a full census was

JACOBS

Reinforced "VERYBEST" Lug Straps

"REINFORCED"
means
"More material where it will do the most good!"



That's the *practical* formula followed by JACOBS in building both short and long lug straps that really perform—longer!

E. H. JACOBS MFG. CO.
EST. 1869
DANIELSON, CONN. CHARLOTTE, N. C.

"BY GORRY, I LIKE TO WORK IN MAINE!"

"NEVER thought much about it 'til the other day someone said to me 'Lester, how do you like your job?' This kind of set me to thinking. I have worked in this woolen mill for 24 years. Never worked in but one other plant. I like my job. I like the folks that I work with and I like the folks that I work for.

"Now when it comes down to why I like my work, there are many reasons. I am a weaver, and I like to see perfect cloth come rolling off the machine. In the 24 years I have been able to make a few suggestions to my boss that have made improvements. Whenever I get a chance I like to go into the finishing room, and sometimes into the shipping room. I like to see this beautiful cloth rolled up and shipped out. I take the same pride in the cloth going out of this mill that I do in my own garden.

"On the small farm that I own just outside of the village, I have a mighty good garden every year. If I can get green peas by the Fourth of July, or raise a squash a little bigger than my neighbor's, I feel pretty good about it. I have always kept a cow, and I am always mighty sure she is a good one.

"I have raised a family and educated them. Every one of them has a better education than I have. Some of them have settled right down here in the town.

"Another thing that makes me like my job is the fact that I like to go fishing. In the summer months, there is plenty of time after work to drive to a stream or lake nearby, where I can get some fine trout fishing.

"So you see, it is easy to understand why I like my job. I like to make good cloth, I like my garden and I like to go fishing. I find most of the workers about me feel just the same as I do."

Lester N. North

What Lester North says, if carefully analyzed, constitutes an invitation for you to establish your industry in Maine. The State of Maine takes great pride in its industrial workers. They are capable, loyal and happy. The success of any industry depends on the quality of its workers.

If you are thinking of moving, expanding or decentralizing, it will pay you to investigate the industrial possibilities of the State of Maine. Send for the free booklet "Industrial Maine".

STATE OF MAINE TEXTILE INDUSTRY

MAINE DEVELOPMENT COMMISSION, STATE HOUSE, AUGUSTA, MAINE

made in 1945, there has been little to go on since prewar days.

To Forward Research. As one step in its expanded research program, the American Association of Textile Chemiscts & Colorists is establishing eight advisory committees on research, one from each section of the association. The setting up of these advisory committees will permit the association to make fuller use of the knowledge and research abilities of its members and of the laboratories in which its members are employed or have access to.

"Crown College." The Crown Mfg. Co., Pawtucket, R. I., has developed an interesting employee relations program based on the conception that the company and its plant is a college and its employees are students. The parallelism as carried out in calling K. B. Cook the "dean" of Crown College. Other records indicate that Mr. Cook is vice president and general manager. A new house-organ has been issued under the title *"Crown College" Capers*, which is well illustrated and newsy. It also contains the official campus song of Crown College which utilizes the familiar tune of Cornell's alma mater song.

Shares Company with Employees. Saying he didn't want to wait until his death to distribute his money, Israel Rogosin, president of Beaunit Mills, Inc., New York, celebrated his 60th birthday Feb. 16 with the division of 20,000 shares of stock in his firm, valued at $500,000, among 4,000 employees in his plants. The stock will go to those who have been with the company one year or more and who are earning $3,000 a year or less. An additional 40,000 shares of stock have been placed in the Rogosin Foundation, which he started list year with a gift of 43,000 shares for distribution to charities and universities.

Medal for Aid to China. A Fall River, Mass., textile engineer, who said he "sneaked 5,000 tons of cotton across Jap lines" to keep China's wobbly textile industry going during the war, received a War Department medal and citation Feb. 6 for "unusually sound judgment." This award, the Medal of Freedom, went to Ralph E. Loper, who worked in China with the Donald Nelson mission and served as adviser to the Chinese equivalent of the U. S. War Production Board.

Peruvian Rayon Plant. A new rayon plant, financed by American and Peruvian capital, has been erected at Chucuito (Callao), Peru. The plant, incorporated as Rayon Peruana, S. A., was equipped by Oscar Korhorn & Co., New York.

Scholarship Applicants. George T. Metcalf, executive secretary of New England Textile Foundation, Providence, R. I., reports that a total of 82 applications for Foundation Scholarships from high school graduates or seniors throughout the nation were recently submitted to the four textile schools in New England, and that 78 of these applications were approved and 4 rejected on the basis of the student's record in high school. The schools involved are Bradford-Durfee Technical Institute, Lowell Textile Institute, New Bedford Textile Institute, and Textile School of Rhode Island School of Design. These applicants still have to take a competitive examination on Apr. 12 given by the College Entrance Examination Board.

Plan "Fashion Fair." New York's greatest industry, fashion apparel and related branches, will be featured in "The Fashion Fair," planned to be national this year and world-wide in 1948, and scheduled to be held in the Madison Square Garden Exposition Hall from June 12 through June 18. It will be produced by Leon Leonidoff, Radio City Music Hall producer for 14 years. J. R. "Tex" McCrary, former newspaper and magazine editor, and producer of radio and television shows, is chairman of The Fashion Fair Committee.

Display American Goods in India. The Indo-American Fellowship, 38/3 Second Anvil Colony, Karachi 5, India, is organizing a display of American products of all kinds at Karachi in April and May, 1947. The bazaar will cover industrial machinery, raw and semi-manufactured materials, and cotton, wool, silks, and rayon goods.

Eames Portrait for Lowell. The directors of the Lowell Textile Institute Alumni Association have voted to proceed with the plan to have a portrait painted of Charles H. Eames, and to have same unveiled at the annual meeting on April 26. Mr. Eames served as president of the institute from 1907 to 1945. The portrait is to be a gift from the alumni and friends. A major step in further expansion of Lowell Textile Institute was the breaking of ground for the construction of two 4-story dormitories on Moody St. Each building will cost $500,000.

DARY
RING TRAVELERS

Spinners Know . . . that

DARY RING TRAVELERS

Always Come Through!

In spinning or twisting with any type or count of yarn DARY RING TRAVELERS always assure consistent uniformity and wearability at maximum spindle speeds!

Head spinners know too, that two heads are better than one on ring traveler problems — especially when one belongs to a DARY REPRESENTATIVE!

★ PROCESSED ★
SYMBOL OF SUPERIORITY

The DARY RING TRAVELER CO.
TAUNTON, MASSACHUSETTS

JOHN E. HUMPHRIES, BOX 843, GREENVILLE, S. C.
JOHN H. O'NEIL, BOX 720, ATLANTA, GA.
H. REID LOCKMAN, BOX 515, SPARTANBURG, S. C.

TEXTILE PROCESS COMPOUNDS

MINOTINTS

Oil-base fugitive tints for all synthetic and natural fibers
Identification — Lubrication — Conditioning

RAYON OILS
TINTINOLS
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SS BASE OIL
MINEROL
MEON

BRETON OILS FOR WOOL

BRONE SCRYMSER COMPANY

Office and Works
ELIZABETH, N. J.

Established 1874

Southern Warehouse
CHARLOTTE, N. C.

PENICK & FORD, LTD., INCORPORATED

CORN STARCHES, DEXTRINES, GUMS, CORN SUGARS & SYRUPS
NEW YORK, N. Y. - - - - CEDAR RAPIDS, IOWA
SOUTHERN OFFICES: ATLANTA, GA. - - - - SPARTANBURG, S. C.

John:
Penick and Ford's Starches and Gums for sizing Corduroy warps insure dependable weaving and maximum cutting efficiency.
Let's try the type they recommend. Jim

DE-SLIME

Your Humidifying Equipment

YOU can successfully combat slime in your humidifying equipment by using specially compounded OAKITE AIREFINER NO. 52.

In addition to controlling slime, this quick-acting Oakite chemical agent helps prevent lime scale build-up that inevitably clogs atomizers, drains and return lines. Oakite Airefiner No. 52 is odorless and non-toxic. It may be used without harm to personnel. Try Oakite Airefiner No. 52 to get the best out of your humidifying equipment. Further details gladly sent on request. Write!

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Technical Representatives in Principal Cities of U. S. & Canada

MATERIALS
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SERVICE

OAKITE
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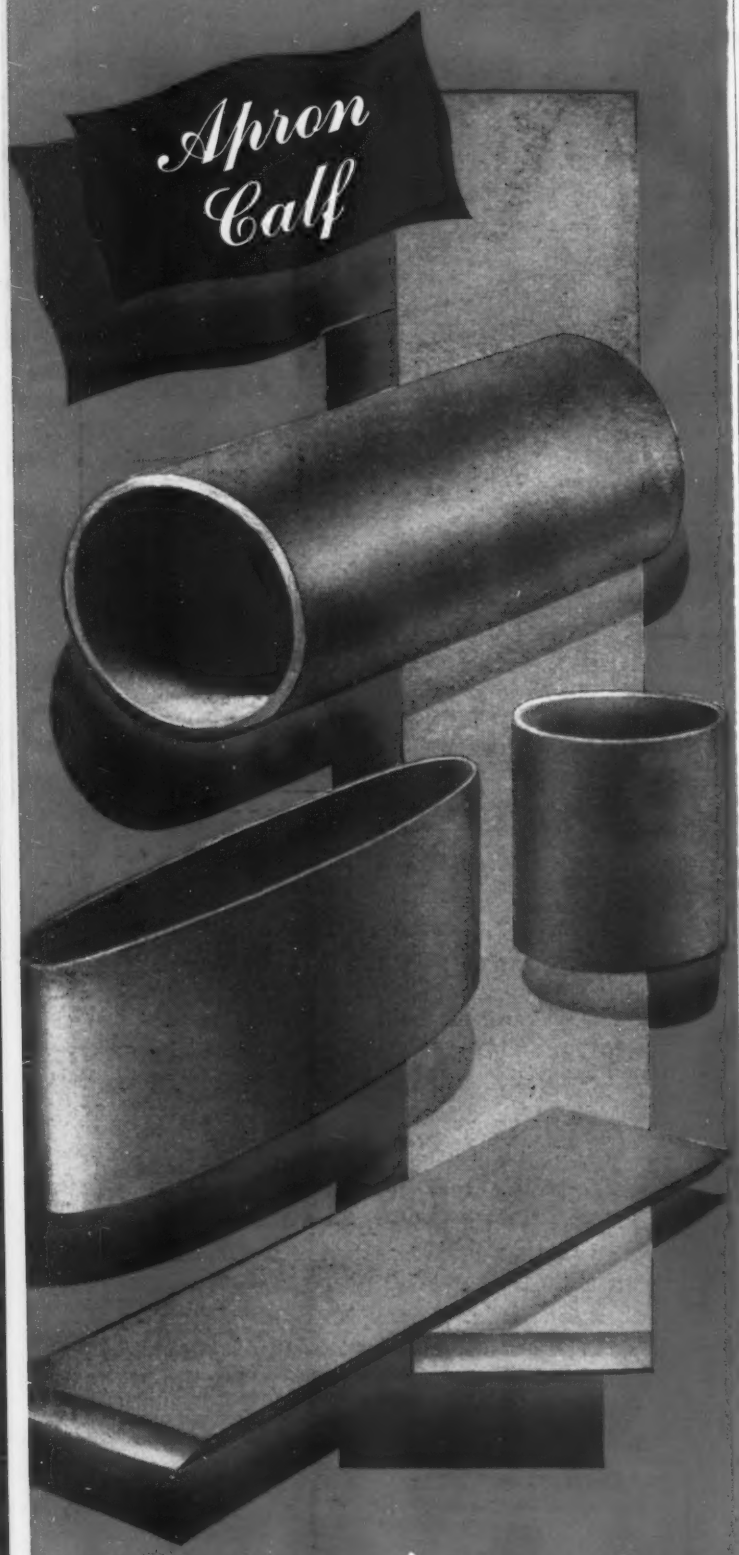
Specialized Industrial Cleaning

FIRST CHOICE IN APRON LEATHERS

LAWRENCE



It's Better Naturally

THAT'S WHY, WHERE QUALITY COUNTS, CALFSKIN SPINS THE YARN

A. C. Lawrence Leather Company, Peabody, Mass. Manufacturers of Lawrence Spinna Calf—top name in roll coverings. Represented by H. H. Hersey, Greenville, S. C.

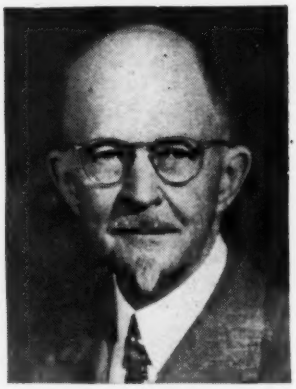
A. C. LAWRENCE LEATHER CO. TEXTILE LEATHERS PEABODY MASS.

NEWS ABOUT Suppliers

Saco-Lowell Shops, Boston, Mass.—At the recent annual meeting President David F. Edwards stated that the volume of unfilled orders had increased greatly during 1946. He added that the shortage of foundry scrap continues acute, with excessively high prices. Late last year the company purchased about 1,000 tons of Mexican pig iron at over double normal prices in order to keep its plants going. Modernization of plant is under way, notably in the replacement of worn-out equipment and limited additions of new tools. A considerable part of the company's expanded production program will be handled by picked sub-contractors, which will avoid over-development of permanent manufacturing facilities which would be burdensome and in excess of requirements when volume returns to normal. Average straight-time earnings of workers are now about double 1939 levels. In 1946 the total payroll took 52¢ per sales dollar against 44¢ in 1941.

THE NATIONAL ASSOCIATION OF TEXTILE MACHINERY MANUFACTURERS will battle a government move to divert much of the output of the industry's pig-iron supply to housing because it would create "chaos and widespread unemployment," according to T. H. West, of Draper Corp., Hopedale, Mass., president. At the recent annual meeting, Mr. West predicted that many of the industry's 25,000 workers would be forced out of jobs if any further slash in available materials was made. The group voted unanimously to ask New England Congressmen and Senators to block the projected move.

The Cook-P & N Machine Co., Inc., has been formed with offices at 367 Dorchester Ave., Boston 27, Mass., to offer a line of textile finishing machinery. It is an affiliation of the former Cook Machine Co., Waltham, Mass., and Peterson & Neville, Inc., Boston. The Cook company manufactured finishing equipment, especially cloth-detwisting machinery, and the Peterson-Neville organization designed and constructed heavy sheet metal products, largely stainless steel. Increased manufacturing facilities have been set up, and the principal officers and directors are: president, George A. Parsons; vice president and general manager,



DRAPER CORP., Hopedale, Mass., has appointed S. Walter Batty (left) advertising manager, only the fourth man to hold that position since 1889. William H. Chase (right), advertising manager and editor of "Cotton Chats" since November, 1922, has been appointed director of advertising and will remain with the company in an advisory capacity. Mr. Batty joined Draper Corp. in May, 1911, has served in practically every department, and was particularly active in Draper's extensive war-contract work. Mr. Chase began his business career as a newspaper editor and publisher in western Massachusetts about 1894, joined Draper Corp. in 1904, and served for eight years as a salesman in the Northern territory.

Percy Cook; vice president, Walter K. Shaw, Jr., also president of E. A. Shaw & Co., Boston cotton house.

Troy Whitehead Machinery Co., Charlotte, N. C., has equipped one of its salesman's cars with radiotelephone to facilitate contact between the main office and the men in the field. Ira S. Teat believes he is the first machinery company official in the South to communicate with his salesmen by radio. The company is planning to equip all of its cars and trucks with radiotelephone in all sections of the United States where this service is available. The calls are handled through the usual telephone-company channels.

Marshall & Williams Corp., Providence R. I., has opened a new plant at 121 Welborn St., Greenville, S. C., for the repair and service of tenter frames and tenter chains. This plant is known as the Marshall & Williams Southern Corp. Fred H. Land has been appointed manager.

American Cyanamid Co., Dyestuff Department, Calco Chemical Division, Bound Brook, N. J., has appointed John H. Derry, as a sales representative to the textile trade in the New York-Metropolitan district. He joined Calco in 1940 and served in the war. Dr. M. L. Crossley, director of research, Calco Chemical Division, has been unanimously selected to receive the 1947 gold medal of the American Institute of Chemistry.

International Tricot Machinery Corp., North Bergen, N. J., has completed the specially designed and improved (Simplex) double tricot warp-knitting machine. This machine, distinct from the single-bar machine, employs double needle bars and double guide bars to produce the double-face sueded fabric which till recently has been confined almost exclusively to the glove industry. The prewar production of this fabric in Germany and this country was about 8,000,000 yd. per year, which was always inadequate for the demand which spread to include handbags, shoes, sportswear, underwear, dresses, swim suits, hostess gowns, and many other products. Herbert Mitchell, president of the company, believes that this segment of the textile industry is still in its infancy. A recent Government investigation, it is said, showed about 100 Simplex machines in operation in the United States and about 40 Simplex machines in England, working 24-hr. a day. The International Simplex is designed along the lines of the Saupe Simplex machine, with various improvements for which patents have been applied for.

WILLIAM L. PAULHAMOUS, who has been appointed by Farrel-Birmingham Co., Inc., as sales manager of its Atwood Div. at Stonington, Conn., in charge of textile machinery sales. He has served in various capacities in the Atwood organization since 1930. From 1938 to 1942, he was sales representative for the New England territory. After three years as personnel manager, he returned to sales work in the New England territory and for the last two years has been in charge of all sales activities.

Westvaco Chlorine Products Corp., New York, has appointed J. A. Mooney, general superintendent since 1945, to be resident manager of the South Charleston plant. M. H. Norton has been promoted to

ALBERT J. MATTHES, president of Machinery Liquidating Co., New York, has set up a foundation by his own personal contribution to offer three one-year fellowships at Carnegie Institute of Technology, Pittsburgh, Pa., to qualified applicants from Latin America. The sponsor is the Matthes Foundation, Inc., and each fellowship carries with it the sum of $1,000. Candidates may be examined in any of the following branches of engineering: civil, electrical, mechanical, chemical, metallurgical, as well as in physics, chemistry and mathematics. Mr. Matthes hopes to bind the Western Hemisphere more closely together by this interchange of friendship and culture.

TOP NAME IN ROLL COVERINGS

LAWRENCE

Spinna Calf

It's Better Naturally

THAT'S WHY, WHERE QUALITY COUNTS, CALFSKIN SPINS THE YARN

A. C. Lawrence Leather Company, Peabody, Mass. Manufacturers of Lawrence Calfskins — 1st choice for aprons.

A. C. LAWRENCE LEATHER CO. TEXTILE LEATHERS PEABODY

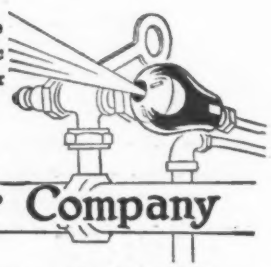
Humidifiers or Humidification

Where desperate need for moisture exists, anything labeled "humidifier" can hardly fail to help. Thus "humidifiers" sometimes get more credit than they deserve.

Mysterious looking objects delivering moisture and humidification have little in common. Humidification reckons with many things; the changing demand of the seasons, of each day, or hour, or minute. It includes peculiarities of plant, processes and product. Finally, it aims at more and better production.

Yes, "humidifiers" may help. Genuine humidification produces astounding results.

No piping changes. The self-cleaning Turbomatic interchangeable with earlier and other models.



Parks-Cramer Company

Fitchburg, Mass. Boston, Mass. Charlotte, N. C.

general superintendent of the South Charleston plant. Thomas F. Jackson has been appointed resident manager of the Carteret, N. J., plant of which he has been acting manager since February, 1946.

Dexter Chemical Corp. has appointed Stanalchem, Inc., New York, as exclusive export representative for their Textile Chemical Div.

S. C. Johnson & Son, Inc., Racine, Wis., has appointed J. J. McSunas, Jr., as merchandiser of its Fabric Finishes Dept. He will direct the merchandising and promotion of Johnson's fabric finish, Drax, in the textile industry. He has been with the company since 1936.

Southern Standard Mill Supply Co., Charlotte, N. C., has moved from 512 W. 4th St., to new offices at 513 S. Tryon St.

Foster D. Snell, Inc., has moved from 305 Washington St., Brooklyn, N. Y., to its newly acquired building at 29 W. 15th St., New York 11, N. Y.

Textile Industry Research, Inc., New York, has elected the following directors: Ernest L. Frankl, New York; Guiseppe Gherzi, Zurich, Switz.; Victor Jacobs, New York; Fritz Zweifel, Pawtucket, R. I. Following are the officers of the corporation: Ernest L. Frankl, president and treasurer; Max J. Weyl, vice president; Henry Mayer, secretary.

Consos, Inc., Charlotte, N. C., has appointed W. A. Wolhar, formerly general manager of the finishing plant of Springs Cotton Mills, Lancaster, S. C., to its staff for sales of dyestuffs and chemicals. Mr. Wolhar will act primarily as technical advisor to finishing plants.

Elmer P. Scott Co., Inc., and **Walscott Products, Inc.**, have moved their offices and showrooms to new enlarged quarters at 40 Worth St., New York, N. Y.

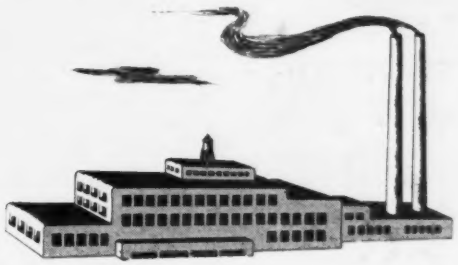
Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., has elected L. M. Marley as a vice president. He has been vice president in charge of sales of Brown Instrument Co., a wholly-owned Honeywell subsidiary at Philadelphia, and will continue to supervise sales of the industrial control devices made by the Brown division. He is now an officer of the parent company as well as its subsidiary.

GEORGE O. LINBERG, who has been appointed by Monsanto Chemical Co. as sales manager of the company's textile chemical department with headquarters in Boston, Mass. He will direct textile chemical sales under a national expansion program involving several million dollars in new plants and facilities. The textile department is part of the company's Merrimac Division with headquarters in Boston and plant facilities at Everett, Mass. The department serves as a company-wide sales and development agent for all Monsanto products applicable to the textile field. Mr. Linberg will assist Dr. Donald H. Powers, director of the department, and he will work in conjunction with Nate L. Crabtree, promotion manager, and Sawyer Sylvester, head of the department's technical developments. Mr. Linberg is a veteran of the textile and chemical fields. In 1938 he pioneered the continuous dyeing of indigo on woolen piece goods in conjunction with Ware Woolen Co., Ware, Mass. He joined Monsanto Feb. 1. He was general chairman of the recent silver-jubilee convention of the AATCC in Boston. He is chairman of the Northern New England Section of AATCC, a member of the Textile Research Institute, and a member of Rubber Div. of the American Chemical Society in Boston.

E. I. du Pont de Nemours & Co., Wilmington, Del., has promoted Dr. John H. Blomquist to the position of research supervisor in the nylon section of the Rayon Technical Div.

Monsanto Chemical Co., St. Louis, Mo., is constructing additional elemental phosphorus production facilities at Colum-

Facts . . .
CORNERSTONE OF INDUSTRY



The growth of manufacturing and distributing plants throughout the Southeast is based on sound planning for tomorrow. The Southeast is strategic for the development of new markets, new opportunities for industrial expansion.

Along the progressive Seaboard are many available plant sites, offering superior advantages to different types of industries. All of them are accessible to Seaboard's fast freight transportation facilities.

Seaboard will give you *specific* facts, not generalizations . . . . facts in the form of surveys of actual locations it believes will best suit your individual purposes from every practical consideration, such as labor, accessibility of raw materials, utility and transportation potentials.

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Dallas T. Daily, General Industrial Agent,
Seaboard Air Line Railroad Company,
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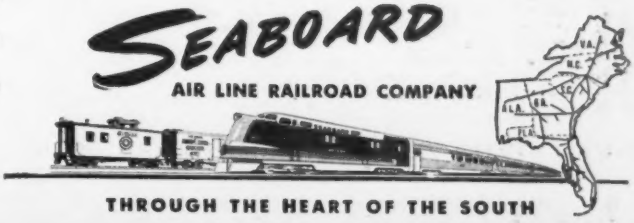
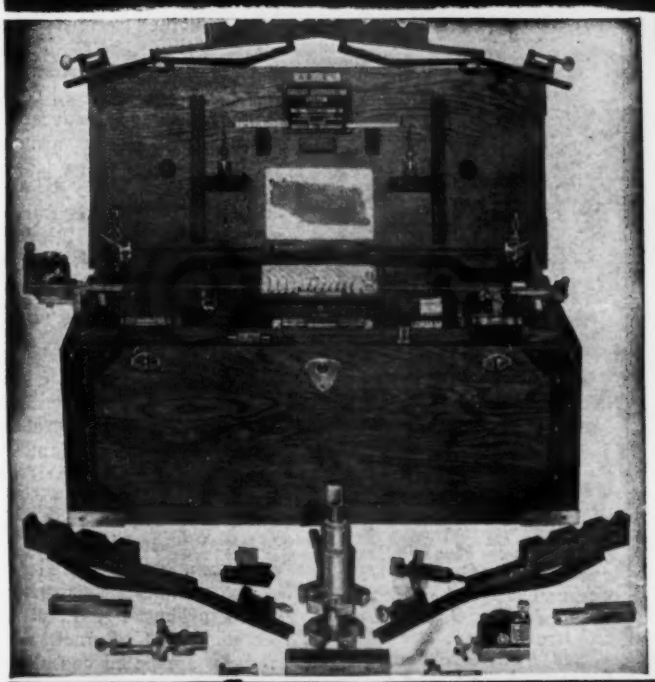
AIR LINE RAILROAD COMPANY



THROUGH THE HEART OF THE SOUTH

"THE MODERN TREASURE CHEST"



Save TIME MONEY MACHINERY

with

GUILLET'S OVERHAULING SYSTEM FOR LINING, LEVELING AND CONDITIONING FRAMES.

Guillet's system pays for itself in FOUR DIRECT SAVINGS

- √ **Unnecessary Wear**
- √ **Less Power Consumption**
- √ **Fewer Expensive Breakdowns**
- √ **Better Quality of Yarn**

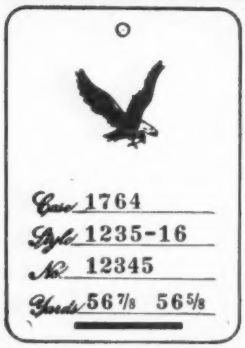
The system is flexible and is designed to meet the several different requirements of any Cotton, Silk or Worsted Mill

Weekly rental or outright sale. *Free demonstration on request.*

MANUFACTURER

DIXIE SPINDLE & FLYER COMPANY, Inc.

CHARLOTTE — ALBERT M. GUILLET, PRES. — NORTH CAROLINA



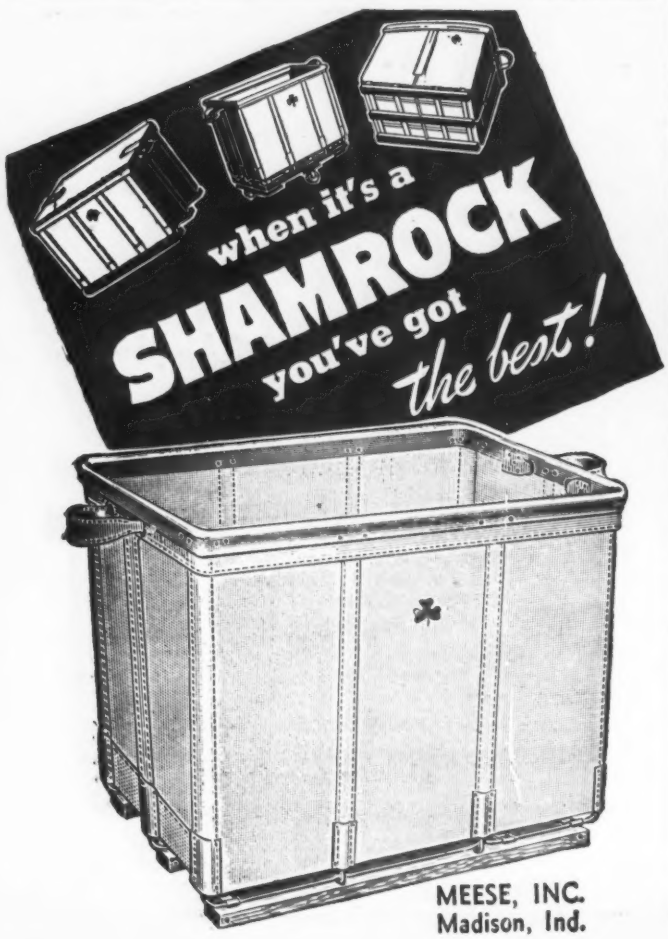
The New
AMERICAN
SPEED
SET
GEAR CONSTRUCTION
NUMBERING
MACHINES

Designed Especially For
MARKING TEXTILE MILL TAGS
TICKETS, LABELS, Etc.

Modern textile merchandising demands CLEAR, EASILY READ piece, lot and case numbers, size and yardage lengths, etc. Supply this demand and use the new American Speed Set Gear Construction Numbering Machines. Such numbering with Speed Set machines can be done quickly and easily. Numbers change instantly with touch of fingers and ANY COMBINATION OF NUMBERS can be quickly obtained. All steel wheels, deeply engraved figures, self inking.

Eliminate errors and see that your tags, tickets, labels, etc., are attractively and legibly numbered the SPEED SET way. WRITE TODAY FOR FOLDER describing these new machines used in Cotton, Woolen, Hosiery, Knit Goods, and Dyeing and Finishing plants.

American Numbering Machine Co.
ATLANTIC & SHEPHERD AVES. BROOKLYN 8, N. Y.



MEESE, INC.
Madison, Ind.

bia, Tenn., involving an investment of more than $2,000,000, and permitting over 50% increase in Monsanto phosphorus production.

National Oil Products Co., Harrison, N. J., has appointed Miss Emily A. Taylor as manager of the Industrial Advertising Div.

American Aniline Products, Inc., New York, N. Y., has promoted Robert H. Nuttall, formerly director of application laboratories at its Lock Haven plant, to the post of technical director of the company's Southern operations. He will coordinate and direct all phases of laboratory work and demonstrations for the Charlotte and Chattanooga branches. He was formerly superintendent of printing at Lanett Bleachery and Pacific Mills.

Commonwealth Color & Chemical Co., Brooklyn, N. Y., has established new Chicago office at 442 No. Wells St., which gives enlarged storage, laboratory and office facilities.

Yale & Towne Mfg. Co., New York, has arranged to borrow $10,000,000 to provide for additional working capital and for plant expansion. This latter includes a new 16-acre one-story plant in Philadelphia to replace the present one. The new plant will have capacity to employ 3,000 on one shift, which is 900 more than are working in the present plant on two shifts.

AGNEW H. BAHNSON, JR., formerly vice president and general manager of The Bahnson Co., Winston-Salem, N. C., has been elected president succeeding his father, A. H. Bahnson, Sr. Mr. Bahnson, Jr., has been associated with The Bahnson Co. since 1937.

THOMAS H. MILLER, who has been elected president of Kaumagraph Co., Wilmington, Del., replacing Trowbridge Marston, whose 20th anniversary as president was recently cerebrated. Mr. Marston at the same time was elected chairman of the board. Mr. Miller has been with Kaumagraph since 1926, during which time he has been secretary, treasurer, and vice president. S. W. Porges, who has been with Kaumagraph since 1929, was elected vice president and will continue to direct sales. George S. Reid and Mrs. Elaine P. Murray were elected treasurer and secretary, respectively. The officers, with the exception of the secretary, together with James W. Ames, Samuel H. Gillespie, Mrs. Hilda C. Marston, and Frederick T. Marston, constitute the directorate.

Warwick Chemical Co., Division of Sun Chemical Corp., New York, has formed a sales promotion department to supplement the advertising program on the featured fabric finishes, Impregnole, Norane and Dur-Lana. Tamora G. Noyes, former fashion editor with American Broadcasting Co., will head this department.

George A. Urlaub is conducting his textile consulting service from 209-46 110th Ave., Queens Village 9, N. Y. He is no longer associated with Louis Hirsch Textile Machines, Inc., New York.

Raybestos-Manhattan, Inc., Passaic, N. J., has opened a consolidated office in Cleveland at 1071 Union Commerce Building. R. F. Tobin is office manager.

United States Rubber Co., New York, has appointed Dr. S. I. Strickhouser as manager of its Providence, R. I., plant, succeeding M. G. Burnett, who has been appointed consultant on the staff of Ernest G. Brown, vice president and general manager of the mechanical goods, general products, and Lastex yarn and rubber thread divisions.

Announcing

BRITISH INDUSTRIES FAIR

LONDON & BIRMINGHAM, MAY 5—16, 1947

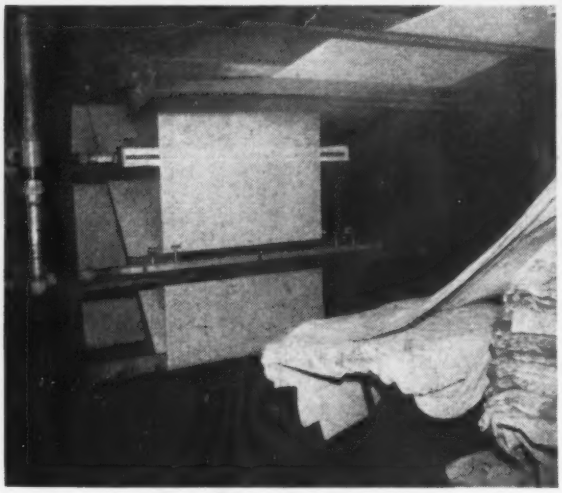
This is your first opportunity in seven years to see your old suppliers in Britain and to meet new ones.

Overseas Buyers are invited to Britain for the 1947 British Industries Fair. It will enable them to establish personal contact with the makers of the immense range of United Kingdom goods displayed in the London (Lighter Industries) and Birmingham (Hardware & Engineering) Sections of the Fair. The careful grouping of exhibits will assist buyers to compare the products of competing firms with a minimum of time, trouble and expense. Special arrangements to suit individual markets can be discussed and terms and conditions of business settled direct with the manufacturer, since only the actual producer or the sole selling agent may exhibit.

★ *For full details of the* 1947 *Fair apply to the nearest British Commercial Diplomatic Officer or Consular Officer, or the British Trade Commissioner in your area.*

BRITAIN PRODUCES THE GOODS

TEXTILES and CLOTHING
Will be shown in London



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SINGEING HAIR INTERLININGS PERFECTLY AND AT GREATLY INCREASED SPEEDS

Write For Bulletins

RED-RAY MANUFACTURING CO., INC.

455 WEST 45TH ST. NEW YORK 19, N. Y.

For Maintained Shrinkage— Perfect Finish—Long Life

HUYCK

→COMPRESSIVE SHRINKAGE←

BLANKETS

for use in shrinking fabrics to the *"Sanforized"* standard by the Compressive Shrinkage process, are daily meeting the most exacting requirements of finishers throughout the industry. From the lightest and finest fabric to the heaviest denim, there is a special Huyck blanket to meet your specific needs.

Huyck blankets retain high shrinkage and finish properties to the last.

PALMER BLANKETS—also available for your special requirements.

Write for information or see our representative

F. C. HUYCK & SONS
KENWOOD MILLS
Albany 1, New York

NEWS ABOUT Mills

Cotton Mill News

Anchor Fabrics Co., Wellford, S. C., has been chartered with authorized capital of $100,000 to manufacture textiles. Officers are: J. Y. Higgins, president; John H. Wellons, vice president, and L. C. Finley, secretary and treasurer.

B. & H. Textile Co., Rock Hill, S. C., has been chartered with authorized capital of $10,000 to engage in a cotton-weaving business. W. F. Bennett is president of the company, John C. Coker is vice president, and Theron C. Hutto is secretary-treasurer.

Bates Mfg. Co., Lewiston, Me., will spend $2,000,000 for plant improvements and will replace 1,100 looms of old types, as well as old preparatory equipment.

Forsyth Cotton Mills, Forsyth, Ga., is building a one-story brick addition to its mill as part of its expansion and improvement program. Facilities will be expanded by 4,000 spindles and four 8 x 4 frames will be replaced with 10 x 5 frames. The mill is now running a 102-hr. weekly schedule.

Glenn Mills, Inc., Lincolnton, N. C., has been organized with capital of $1,000,000 to operate a cotton mill.

Globe Mills Co., Inc., Mount Holly, N. C., has just completed a 104 x 296 ft. addition at a cost of $250,000, including machinery.

Gold-Tex Fabrics, Rock Hill, S. C., has in progress an initial building and improvement program which will involve the expenditure of over $100,000. This is the first step in a long-range program planned for the mill. Construction now under way on a 5,000-sq. ft. dyehouse is expected to be completed soon.

Harrison-Walker Mills, Inc., Stubbs, N. C., which recently sold its machinery, equipment and supplies to Troy Whitehead Machinery Co., Charlotte, N. C., is reported to be planning to continue operations in Shelby, N. C., as soon as arrangements for a plant and equipment can be completed.

Inman Mills, Inman, S. C., and **Riverdale Mills,** Enoree, S. C., will undertake modernization programs totaling $250,000 for each plant. The water-supply and sewage-disposal facilities will be improved.

Jefferson Mills, Jefferson, Ga., plans to expand its plant and will employ 2,000 additional workers.

Landale Co., Jefferson, Ga., is a new company which will open a plant as soon as a building is completed. Upholstery fabrics, draperies, and auto seat covers will be manufactured. About 200 workers will be employed.

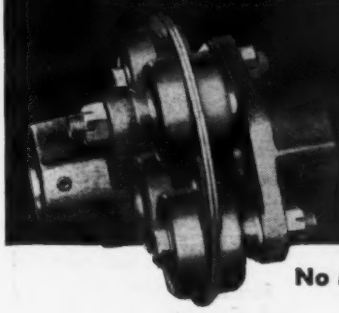
Marshall Field & Co., Inc., spent close to $1,000,000 in 1946 for modern textile machinery, most of which has been delivered and installed. The company plans to build a $45,000 one-story addition to its Draper, N. C., sheeting mill. CPA has granted approval.

Morgan Cotton Mills of Georgia, Inc., Quitman, Ga., has been purchased by Alexander Smith & Sons Carpet Co., Yonkers, N. Y. No change is contemplated in the management of the mill, which in recent years has supplied a considerable portion of the cotton yarns used by the carpet company.

Nashua Mfg. Co., Nashua, N. H., will be streamlined by Textron, Inc., to permit continuous three-shift operations. New lines of production will be added. A large portion of the company's blanket operations have been dropped.

Ottaray Textiles, Inc., Anderson, S. C., will start further expansion as soon as weather permits and will equal the $100,000 improvement project

MORFLEX COUPLINGS



clean quiet dependable

No Maintenance Problem!

Morflex couplings require no lubrication—do not throw grease or oil. Torsionally resilient Neoprene biscuit assembly isolates vibration, protects machinery from shock. Quiet-running, long-lasting. Send for further information.

MORSE CHAIN CO. • Detroit 8, Mich. • Ithaca, N. Y.

A Borg-Warner Industry

MORSE MECHANICAL POWER TRANSMISSION PRODUCTS

DAVIS AND FURBER

Earn a Manufacturing Profit By Using the Best Machinery and Supplies

DUSTERS
PICKERS
CARDS
MULES
WOOLEN SPINNING FRAMES
SPOOLERS
DRESSING FRAMES
NAPPERS
CARD CLOTHING
NAPPER CLOTHING
GARNETT WIRE
LEATHER RUB APRONS
LEATHER CONDENSER TAPES

DAVIS & FURBER
NORTH ANDOVER, MASS.

THE ACCEPTED STANDARD

New Wool Oil Offers 7 Advantages

TWITCHELL SOLUBE 463

We now have available a new oil which offers seven definite advantages to wool and worsted manufacturing operations —Twitchell Solube 463. Laboratory tests, mill tests, and actual production runs prove that this oil offers (1) easy scourability, (2) an economy of soap, (3) good dispersion in cold water, (4) efficient lubrication, that it is (5) non-staining, (6) non-oxidizing, (7) non-heating.

How to Use SOLUBE 463

Applied by your regular methods as an emulsion of 4-6 parts water, one part oil.

For lighter weight woolens . . . scour (and full) with 3 to 5 ounces soda ash/gallon.

On heavier fabrics, in addition to soda ash, one-fifth usual amount of soap.

For worsteds . . . scour with normal amounts of soda ash plus one-fifth usual amount of soap.

For knitting yarns . . . apply as emulsion in preparatory gilling. Twitchell Solube 463 scours readily with synthetic detergents or reduced amounts of soap.

Make a proof-test run with SOLUBE 463, and compare results. Write us your requirements today.

EMERY INDUSTRIES, INC. TWITCHELL TEXTILE OILS

CAREW TOWER • CINCINNATI 2, OHIO
3002 Woolworth Bldg. NEW YORK 7, N. Y. — 187 Perry St. LOWELL, MASS. — 401 N. Broad St. PHILADELPHIA 8, PA.

STEARIC ACID • OLEIC ACID • ANIMAL AND VEGETABLE FATTY ACIDS • TWITCHELL PRODUCTS • PLASTICIZERS

BUILDINGS NOW UNDER CONSTRUCTION FOR NATIONALLY KNOWN CLIENTS

American Car & Foundry Co.
Bloomsburg Mills Inc.
Burry Biscuit Co.
Continental Can Co.
Duplan Corp.
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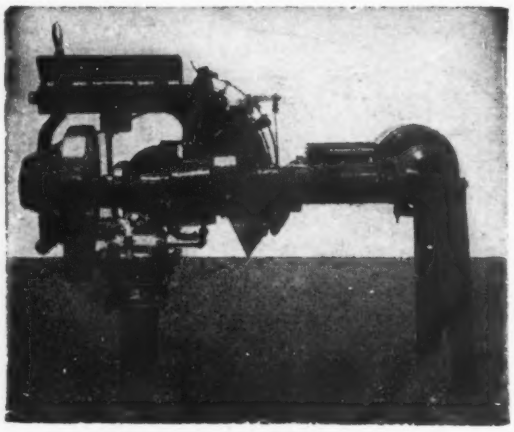
Fabrica De Tejidos Del Altiplano
Flintkote Co.
Hess Goldsmith & Co.
Scranton Lace Co.

INDUSTRIAL BUILDINGS

Lacy Atherton Wilson & Davis

ARCHITECTS & ENGINEERS

Hotel Sterling Bldg. Sixth & Maclay Sts.
Wilkes Barre Pennsylvania Harrisburg



THE TYPE K BOBBIN STRIPPER

HIGH CLEANING CAPACITY
Protects barrel and finish. Usually pays for itself in one year—always within 18 months.

Complete information promptly furnished upon request

The **Terrell Co.,** *Inc.*

CHARLOTTE, N. C.

W. J. Westaway Co., Ltd.....Hamilton and Montreal, Canada
James F. Notman.....Needham, Mass.—N. E. States
E. W. S. Jasper, Inc., Elizabeth, N. J.—Penna., N. J. and N. Y.
Geo. Thomas & Co.....Manchester, England—European Agt.

which was completed some time ago. The new addition will be two stories high and will extend 35 ft. from the main building. It will provide space for 48 looms to complement the 152 now in operation. About 35 employees will be added.

Pepperell Mfg. Co., has its new Opelika, Ala., bleachery nearing completion. The building will contain 150,000 sq. ft. of floor space and total cost, including equipment, will be about $3,000,000.

Russell Mfg. Co., Middletown, Conn., will undertake further plant expansion at an early date. The program will include the construction of a modern one and one-half story addition measuring 100 x 80 ft. and providing 42,000 sq. ft. of floor space. During the last two years, $909,935 has been spent in capital expenditures, and in the next two years a like amount will be used for new plant and equipment.

J. P. Stevens & Co., Inc., New York, N. Y., was committed as of Oct. 31, 1946 to plant expansion and improvement calling for a total expenditure of about $12,000,000. During the two-month period ending Oct. 31, $1,727,345 was spent in carrying out the program.

Stevens Mfg. Co. and **Seaboard Mills, Inc.,** have sold their Burlington, N. C., plants to U. S. Rubber Co. The plants operate 216 looms.

Wool Mill News

All-Tex Industries, Ltd., Hespler, Ont., recently purchased a building in Strathroy, Ont., and is making good progress with installation of spinning and knitting machinery. Worsted yarns will be produced at the beginning of operations. Woolen underwear and knit rayon will be added later. Wilfred S. Marsland is manager.

American Woolen Co., Lawrence, Mass., spent $3,073,323 for new machinery and equipment in 1946 and $1,603,915 in 1945.

Bluebonnet Blanket Mill, San Marcos, Texas, plans a new one-story mill which will cost about $140,000, including equipment.

Cohoes Yarn Mills, Cohoes, N. Y., has been dissolved and its assets have been taken over by Regis Textiles, Inc. The former company had been in business for about a year making woolen yarns.

Deering, Milliken & Co., Inc., New York, N. Y., has its new McCormick, S. C., spinning mill in partial operation with 100 workers. Over 300 will be employed when all 20,000 spindles are in place.

Duesberg-Bosson Realty Corp. has bought the unexpired lease on 12 units of the old Jefferson Mills in Holden, Mass., from Gallowhur Chemical Corp., New York, N. Y. Plans call for the operation of a wool-spinning mill in three of the newer buildings. Hubert D. Duesberg, former head of Lombard Machine Co., Worcester, Mass., is president of the realty firm.

Esmond-Virginia, Inc., Waynesboro, Va., is planning further expansion. Plans are also under way to transfer crib-blanket operations to Waynesboro from Rhode Island. The company is a subsidiary of Esmond Mills, Inc., Esmond, R. I.

Hill Woolen Mills, Inc., Norwich, Conn., has moved into a new plant on South Golden St. Approximately 100 workers are employed in the manufacture of knitting yarn and other wool products.

Palmetto Spinning Corp., Laurens, S. C., newly organized, has begun operations in the manufacture of woolen yarns. Officers are: R. O. Hollingsworth, president; Ben T. Comer, vice president; and W. Fred Davis, secretary and treasurer.

Safwoltex, Ltd., Worcester, Cape Province, South Africa, will establish a mill for the manufacture of wool tops, yarns, and all types of woolen and worsted cloth. This is the third such plant to be established in South Africa in recent years. The new company, capitalized at £800,000, is sponsored by French interests, and French workers will be brought in to operate the plant. Another new company, Good Hope Textile Corp., Ltd., Kingwilliamstown, will be established with British participation. This plant will employ

WHEN IS ONE MULE 13 TIMES Better?

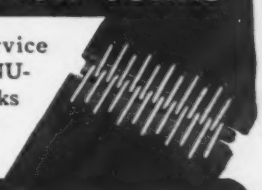
WHEN IT'S A JOHNSON AND BASSETT MULE,
WHICH HAS 13 ADVANTAGES OVER RING SPINNING FRAMES
AS FOLLOWS: **1.** Up to 50% saving in labor. **2.** Up to 65% saving in H.P. per equal number of spindles. **3.** Up to 50% saving in floor space per equal number of spindles. **4.** Up to 67% saving in investment per comparable capacity. **5.** The J & B Mule will handle a much coarser roving than a frame, thereby increasing production at the card by 15% to 20%. **6.** The J & B Mule produces a true woolen yarn superior in strength, elasticity, loftiness, roundness and uniformity of size and twist to that produced by frame spinning. **7.** It permits inspection of the thread. **8.** It will successfully spin short staple roving which will not hold together on a frame. **9.** Spindle for spindle, it will produce as much yarn as a frame. **10.** Its cost of upkeep is exceptionally low. **11.** The J & B filling package does not require rewinding for an automatic loom. **12.** Changes for spinning different types of yarn on the J & B Mule are easily and quickly made. **13.** Mule bobbins cost less than frame bobbins.

Complete details and prices on request.

JOHNSON & BASSETT, INC.
Founded 1865
WORCESTER, MASSACHUSETTS, U. S. A.

for Better Belt Joints

To keep belts in service longer, use only GENUINE Clipper Belt Hooks applied with Clipper Belt Lacers.

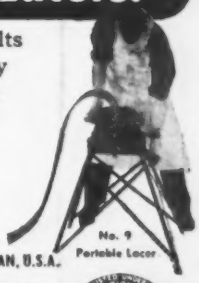


use Clipper Belt Hooks

Clipper Hooks are made of the finest quality wire—BETTER than ever before—produced for our exclusive use. Hooks hold with firm, sure grip—give longer satisfactory service.

and Clipper Belt Lacers!

The Clipper No. 9 Portable Lacer laces belts up to 6 inches wide in one quick, easy operation. Under powerful pressure hook legs are embedded flush with the surface of the belt and points clinched, making a perfect joint. Phone your mill supply jobber for a demonstration!



CLIPPER BELT LACER COMPANY, GRAND RAPIDS 2, MICHIGAN, U.S.A.

April Number of

TEXTILE WORLD

will be the

KNITTING ARTS EXHIBITION NUMBER

Scrubs, Waxes, Polishes Floors
TORNADO FLOOR MACHINE

POWERFUL motor, brush pressures, widths and speeds for all floor areas; with or without tank; balanced, easy operation. Speeds cleaning. *Saves time, materials, money.*

Request details and demonstration.

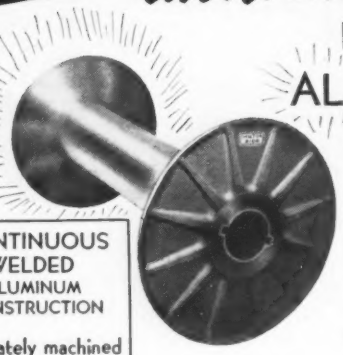
BREUER ELECTRIC MFG. CO.
5086 N. Ravenswood Ave. CHICAGO 40, ILL.

Step into Your New Laboratory. . .
Yes, its yours for three reasons:
—to help you with your wet processing problems
—to offer textile research and technical service
—to develop textile chemicals to your specifications

BURKART-SCHIER CHEMICAL COMPANY • MANUFACTURING CHEMISTS FOR THE TEXTILE INDUSTRY
CHATTANOOGA KNOXVILLE NASHVILLE

MILTON Announces

Its New ALUMINUM TRICOT BEAMS



CONTINUOUS WELDED ALUMINUM CONSTRUCTION

accurately machined after welding to assure a true-running beam with a smooth, permanent finish!

MADE IN ACCEPTED STANDARD SIZES

also made special to meet specific conditions

Write for COMPLETE INFORMATION

Coming . . . A NEW ALUMINUM SECTION BEAM

Incorporating many improved features . . . advantageous to the yarn manufacturer and the processing mill.

INQUIRIES INVITED!

Let us demonstrate the advantages of this new aluminum Tricot Beam

Send for your copy of Catalogue 450 for the complete MILTON story!

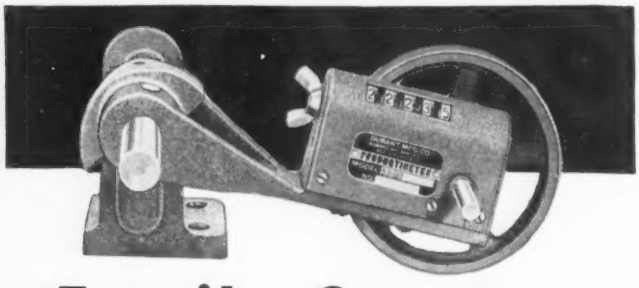
At your service . . .
Fifteen Years Experience
Manufacturing Warp Beam Specialties

SPECIALIZING IN THE TEXTILE MACHINERY FIELD

MILTON MACHINE WORKS

DESIGNERS . . . ENGINEERS . . . MANUFACTURERS

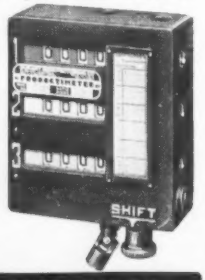
MILTON, PENNA.



Textile Counters for every application!

PRODUCTIMETERS

offer a comprehensive line of counting devices, comprising three, two, and single shift Pick Counters . . . and yardage, revolution, predetermined and electrically operated counters . . . Accurate, sturdy counters, built to give the kind of performance the textile industry demands.



They're fully described in new
CATALOG No. 50
Send for your copy today!

Above: Model 5-D-9, small yardage unit.
Right: Model 4-PC-3, new 3-shift Loom Pick Counter.

DURANT MANUFACTURING COMPANY
1931 N. Buffum Street, Milwaukee 1, Wisconsin
131 Orange Street, Providence 3, R. I.

between 3,000 and 4,000 workers.

Virginia Woolen Co., Winchester, Va., is moving to Middleway, Va.

West Bend Woolen Mills, West Bend, Wis., was severely damaged by fire recently, with the loss estimated at $150,000. The major portion of the plant and office burned.

Rayon & Silk Mill News

Almardon Mills, Inc., Lonsdale, R. I., has been formed with authorized capital of $750,000 to weave filament-rayon fabrics. Albert J. Owler, president, recently resigned from Verney Corp., Boston, Mass. The plant will be equipped chiefly with new machinery and will have 300 automatic looms. Space has been leased in the former Ann & Hope Mill in Lonsdale. The company will do its own winding, slashing, and warping.

Belding Heminway Co., New York, N. Y., is behind schedule on construction of its new throwing plant in Morristown, Tenn. It is expected that the plant will be in partial operation by the third quarter of this year. The company spent $400,000 for buildings and machinery in 1946, and expenditures for new equipment in 1947 will be substantial. During 1946, the company resumed manufacture of silk thread, fabrics, and hosiery and plans to develop its silk lines actively.

Bloomsburg Mills, Inc., plans to start construction Mar. 1 on a one-story addition to its Bloomsburg, Pa., plant. New looms for this building will require 100 additional operators. Cost is reported to be over $200,000.

Burlington Mills Corp., Greensboro, N. C., has received CPA approval for the construction of a $143,000 plant at Galax, Va., to manufacture dress and upholstery fabrics.

Celanese Corp. of America has awarded contract for construction of its $39,000,000 plant near Rock Hill, S. C., to Daniel Construction Co., Greenville, S. C. About 3,000 workers will be employed when the plant is in full operation.

Cheney Brothers, Manchester, Conn., is completing a $2,000,000 modernization program which was planned to centralize textile operations. New high-speed looms, a flexible dyeing department, and complete printing and finishing operations will be housed in the new building.

Covington Weaving Co., Covington, Va., will erect a building with 4,800 sq. ft. of floor space to be used temporarily as a warehouse. Ultimately it will be equipped to house a preparatory department when machinery is available.

F. Ducharne Silk Co. will begin construction of a weaving mill in Glen Rock, N. J., within the next few months. The air-conditioned building will house approximately 100 looms. Project was designed and will be built by The Austin Co.

Duplan Corp. is remodeling its rayon-spinning and weaving mill at Lincolnton, N. C., to increase efficiency and production volume. Modernization of machinery and equipment is also being carried on at the company's Pennsylvania mills.

Goodman & Theise, Inc., Scranton, Pa., will construct a $125,000 plant which will employ 300 persons. The company manufactures fabrics on jacquard, shaft, and worsted looms.

M. Salzberg Sons., Inc., New York, N. Y., is investigating the possibility of leasing a building containing about 75,000 sq. ft. of floor space in Salisbury, N. C. The firm is reported to be interested in establishing a rayon-weaving plant with 375 new looms and auxiliary equipment. Approximately 100 workers will be employed.

Schwarzenbach Huber Co., New York, N. Y., is setting up a rayon mill in Ecuador, South America. This is the company's first foreign plant. The company has also completed negotiations for the construction of a new spinning mill at Allentown, Pa. Work on the 65,000 sq. ft. one-story plant is scheduled to begin in the early spring. The structure will be air conditioned.

Skyline Farms, Ala.—The textile mill, which was built by the U. S. government as part of a

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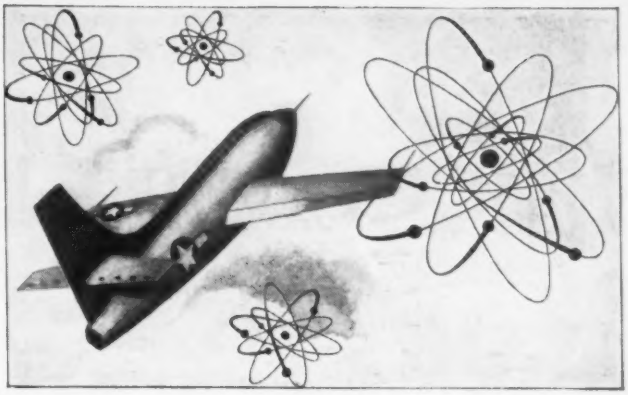

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Consultants to the Textile Industry

rehabilitation project some years ago and which had been used as a hosiery plant, has been sold to Throwsters Associates, Inc. It will be used as a throwing mill.

Knitting Mill News

Artcraft Hosiery Co., Corinth, Miss., plans a one-story addition and improvements in its present mill. An air-conditioning system will be installed. Cost of the project is $85,000.

Borena Knitting Mills has purchased the Fred Brunsell property in Evansville, Wis.

Bossong Hosiery Mills, Asheboro, N. C., is building a $150,000, 137 x 180 ft. one-story addition.

Clayson Knitting Co., Badin, N. C., is installing 40 machines on the second floor of the Badin Pharmacy Building.

Dolly Hosiery Mills, Valdese, N. C., is going ahead with further building, despite a shortage of materials. Plans call for doubling present floor space. The mill makes infants' hosiery.

Dutchess Underwear Corp., Old Forge, Pa., has lately completed an expansion program which added 45,000 sq. ft. to its floor space.

Earle Hosiery Corp., Charlotte, N. C., plans to establish a new plant. A request has been made for permission to erect a 733 x 150 ft. finishing plant and a 13 x 62 ft. dyehouse.

Fanier Knitting Mills, Ltd., Montreal, Que., recently awarded contract for the construction of a four-story plant containing 12,000 sq. ft. of floor space on each floor. Cost is estimated at $240,000.

Gotham Hosiery Co., New York, N. Y., has a program for increasing fine-gage hosiery production capacity at a cost of about $1,500,000 during 1947 and 1948. The program does not include any increase in floor space.

Hall Bros., Snow Shoe, Pa., is building a second plant to manufacture full-fashioned hosiery.

Hanson Textile Co., Hatfield, Pa., has let contract to Steele, Pownall & Gebhart, Inc., Philadelphia, Pa., for a 100 x 160 ft. boiler house. Cost is said to be about $100,000.

Hess, Goldsmith & Co., New York, N. Y., has opened a new plant in Pomona, Cal., to knit and convert rayon. Printing, dyeing, and finishing eventually will be added to the activities of the branch operation. A. B. Clepper, vice president, is in charge of operations and T. E. Tate is production manager.

Hill Mfg. Co., Marietta, Ga., recently established, is turning out men's and women's hosiery.

Hoover Hosiery Co., Concord, N. C., is building a new plant which will add 60,000 sq. ft. of floor space to the company's production facilities.

Holeproof Hosiery Co., Marietta, Ga., has received CPA approval for the construction of a $126,240 addition to be used as a finishing plant. The addition will add 40,000 sq. ft. of floor space.

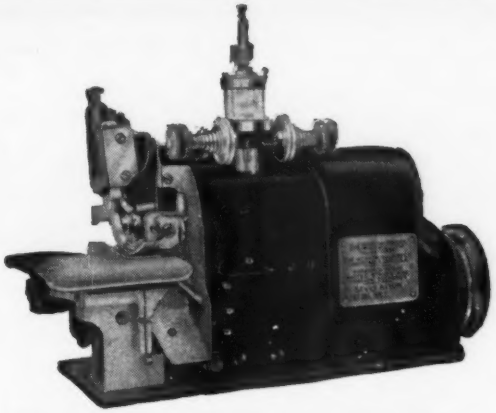
Interwoven Stocking Co., Martinsburg, W. Va., has opened a branch plant in Harpers Ferry to supplement its looping department. Robert Thayer is manager.

Lawr-Rae Hosiery, Reading, Pa., has filed notice of intention to operate a hosiery mill at 603 Greeg Avenue.

Los Angeles, Cal.—Major Rubin, owner of Textile Converting Co., Los Angeles, plans to open a modern warp-knitting plant in February. Using the latest machinery, the plant will produce tricot fabrics for sports and beach wear. George Clairmont, a textile technician, will be associated with the mill.

Lycoming Hosiery Co., Lancaster, Pa., is building a one-story plant near Ephrata, Pa.

Munsingwear, Inc., Minneapolis, Minn., has leased the building now occupied by Barron Woolen Co., Barron, Wis., and will use it as a branch plant.



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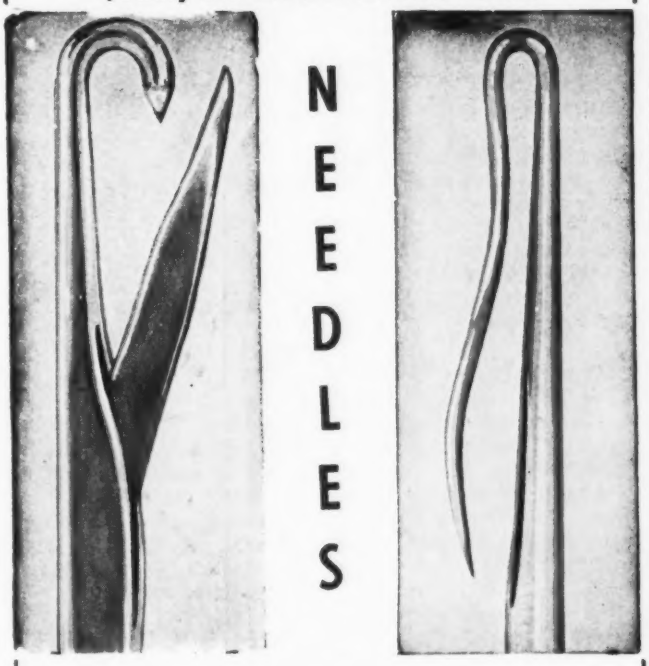

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NEWS ABOUT MILLS

Phoenix Hosiery Co., Milwaukee, Wis., plans to open a new seamless-hosiery plant and is installing machinery in a building now being remodeled.

S & K Hosiery Mills, Salisbury, N. C., has been incorporated with authorized capital of $100,000. Principals, all of Salisbury, are C. H. Starr, Lois L. Starr, and J. M. Kepley.

Seneca Knitting Mills, Seneca Falls, N. Y., a division of Continental Industries, Inc., New York, N. Y., has been purchased by Rockford Mitten & Hosiery Co., Rockford, Ill. No change will be made in the operation of the mill, which makes work socks and bundle wool goods.

Shelton Hosiery Mills, Shelton, Conn., is planning to build a $135,000 two-story building on Howe St.

Star, N. C.—Clay J. Richardson, owner and operator of Clayson Knitting Mills, is establishing a new knitting plant in Badin, N. C. Machinery is now being installed and operations will start as soon as possible. The first unit will include 40 machines.

Stuart Knitting Co., Martinsville, Va., has been formed with capital of $100,000 to operate a knitting plant to make children's underwear and outerwear.

United Hosiery Mills Corp., Chattanooga, Tenn., has opened a new hosiery mill at 516-518 Chestnut St. The plant, which has a total of 494 machines for ribbing, knitting, and looping, will specialize in the gray knitting of hand-transferred anklets. About 335 employees will be required. Sam Castle is manager of the plant.

Wisteria Hosiery Co., Gastonia, N. C., formerly known as Gastonia Full-Fashioned Hosiery Co., has in progress a $500,000 expansion program which will quadruple the company's floor area and provide space for new machinery and a dye plant. Production will be tripled.

Dyeing & Finishing Plants

Colonial Mills, Inc., New York, N. Y., has been authorized by the Virginia Corporation Commission to manufacture, dye, and finish textiles. Lloyd Trimmer is agent, with an office at Clarksville, Va.

Cranston Print Works, Cranston, R. I., has commissioned Lockwood Greene Engineers, Inc., New York, N. Y., to prepare plans for a mill unit.

Davar Textile Printing Co., New York, N. Y., has been organized to operate a mill. William Rosmarin, 1 Madison Ave., is attorney and representative.

Forest Hills Finishing Co., Hickory, N. C., recently went into operation on dyeing of infants', misses', and men's half-hose. The finishing of fabrics is scheduled to begin later. Wade Bowman and W. S. Anderson are partners in the firm.

Fotofab Corp., Pawtucket, R. I., has been chartered to bleach, dye, and finish textile fabrics. Principals are Ralph M. Greenlaw, Barrington, R. I., and Edwin B. Tetlow and Clara E. Waterman, Providence, R. I.

Mid-West Processers, Inc., Libertyville, Ill., is a new company which has a plant nearing completion. Installation of equipment has been started. Carl E. Bick is president.

Providence Dyeing, Bleaching & Calendering Co., Providence, R. I., has completed plans for a bleach house. The project will include general alterations, and work will be done under the supervision of Albert Cochrane, plant engineer.

Renfrew Woolen Mills, Renfrew, Ont., is building a large addition to its dyehouse and plans to enlarge its offices. A tunnel is also being constructed to connect the main plant with a new carding room and picker house. Estimated cost of the work is $200,000.

Secaucus, N. J.—Ground has been broken by Fanbert Realty Corp. for a one-story building which will contain 50,000 sq. ft. of floor space. The structure will be used by a New York concern for the printing and processing of textiles.

West New York, N. J.—John Tegrar and John Najarian have purchased a two-story building at 6010-12 Hudson Ave. and will equip it as a textile-printing plant.

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The Dinsmore No. 9 Portable Rotary Foot Power Sewing Machine is used for handling cloth, thick or thin, wet or dry. Easily shifted to any part of the mill. Positive-acting . . . all gears have machine cut teeth . . . our Improved "DN" Sewing Head is standard equipment. Rubber tire floor wheels. *Write us.*

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NEWS ABOUT *Men*

A. Alex Shuford, Jr., has been elected president and treasurer of Shuford Mills, Inc., Hickory, N. C., which was recently formed through the merger of four separate mills. Other officers elected include **W. B. Shuford,** vice president; **Voorhees Garth,** vice president; **B. G. Menzies,** vice president; **Jesse W. Warlick,** secretary; **Young M. Smith,** assistant secretary; and **James E. Webber,** assistant treasurer.

B. B. Gossett has retired as chairman of the board of Textron Southern, Inc., and as a director of Textron, Inc. He had been head of Gossett Mills, Anderson, S. C., and Chadwick-Hoskins Co., Charlotte, N. C., before they were sold to Textron last May.

C. E. Hatch, formerly president of Brandon Corp., Greenville, S. C., has been named chairman of the board. Other officers elected were: **F. E. Grier,** president and treasurer; **H. E. Runge,** executive vice president; **John S. Abney,** assistant treasurer; **E. W. Seigler,** second vice president; **W. B. Perrin,** general manager; and **A. W. Smith,** assistant general manager.

J. Spencer Love has been re-elected president of Burlington Mills Corp., Greensboro, N. C., and was also elected treasurer. Others elected were: **R. L. Huffines,** vice president; **William S. Coulter,** formerly secretary, vice president and general counsel; **Stephen L. Upson,** formerly assistant secretary, secretary; **Douglas M. Orr,** assistant secretary; **C. E. Rowe,** formerly controller, controller general; **R. N. Stokes,** formerly assistant controller, controller.

Alexander J. Leaderman has been elected president of Rockland Bleachery & Dye Works Co., Brooklandville, Md. He succeeds **Dr. Joseph E. Wright,** who retired.

Robert W. Philip, for the last three years president of Callaway Institute, Inc., has been elected vice president and director of research of Callaway Mills, LaGrange, Ga. He will continue as president of Callaway Institute.

Donald R. Jonas has been elected vice president and treasurer of Johnston Mills Co., Charlotte, N. C., to succeed the late James S. Wilcox. Mr. Jonas has also been elected vice president of Spinners Processing Co., Spindale, N. C., a unit of Johnston Mills Co. **John D. Stratford** has been elected secretary and treasurer of Worth Spinning Co., Stony Point, N. C., also a subsidiary.

John T. Kilpatrick, of Southern Webbing Mills, Greensboro, N. C., has been elected president of the Narrow Fabrics Institute which has its headquarters in New London, Conn.

George L. Parker, who has been with the American Bleached Goods Co., New York, for more than 20 years as a member of the credit department, has been elected treasurer and secretary of the company.

Albert E. Lownes, president of American Silk Spinning Co., Providence, has been appointed lecturer at Brown University on the history of science. Mr. Lownes is widely known as an authority on early scientific books and manuscripts, having an extensive private collection of these from the beginning of printing to 1800, as well as many significant books of the 19th Century.

Joseph F. Zomaitis, formerly of Waterbury and Naugatuck, Conn., has been appointed vice president and technical director of Burlington Mills, Inc., Burlington, Wis. He was for the last 10 years with the Naugatuck Chemical Div. of U. S. Rubber Co., and Dispersions Process, Inc.

Eugene Messner, who served until last December as Consumer Goods Div. Director of OPA, has been made president of a new textile firm, to be

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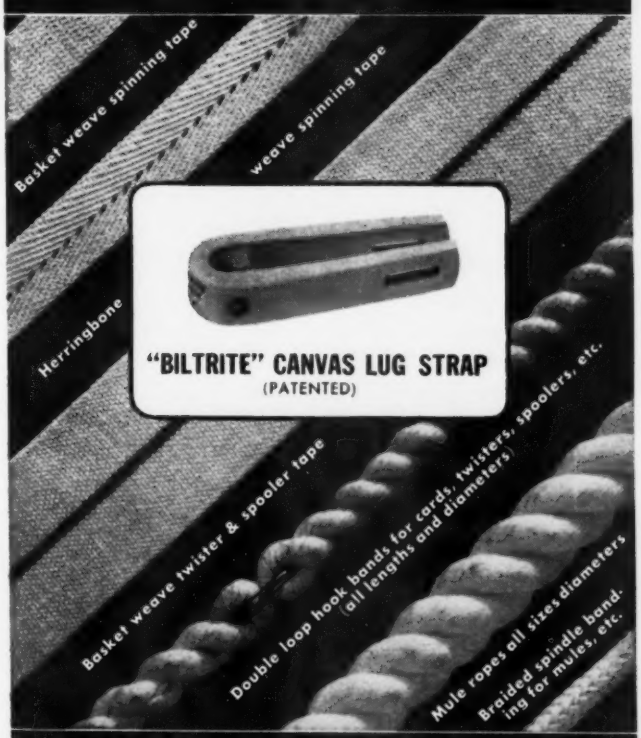
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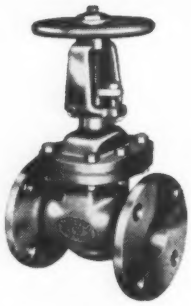
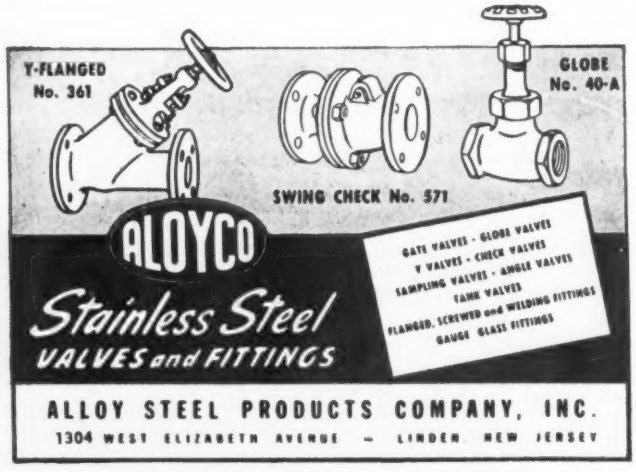


Gate Valve No. 111



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NEWS ABOUT MEN

known as Loomskill Fabrics, Inc., New York, a division of Herbert Mfg. Co., Inc., which will specialize in fine cottons and printed rayon fabrics. Mr. Messner has been identified with the fabric industry since 1919.

Cliff Slusser, formerly vice president in charge of production for the subsidiary textile plants and coal mines of Goodyear Tire & Rubber Co., Akron, Ohio, has been made vice president and general manager of these operations.

Frederick A. McDevitt has been named vice president of Pierce Bros., Ltd., New Bedford, Mass.

E. D. Horton has resigned as superintendent of the cotton department of Judson Mills, Greenville, S. C., to become superintendent of the Hartsville Cotton Mills, Hartsville, S. C.

B. D. Lathrop, treasurer of Aspinook Corp., Jewett City, Conn., has been elected a director of the company.

Hugh F. Leith has retired as treasurer of Abbott Worsted Co., Graniteville, Mass. He will, however, remain vice chairman of the board.

W. F. Davis has become secretary-treasurer of Palmetto Spinning Corp., Laurens, S. C. He was formerly superintendent of the Ottaray unit of Monarch Mills, Union, S. C.

J. E. Cheatham, Jr., has been named secretary of Micolas Cotton Mills, Opp, Ala. He succeeds **Fred M. Lyon,** who resigned.

M. Earl Heard, director of research for West Point Mfg. Co., has been elected to the board of directors of Monarch Knitting Co., Ltd., Toronto, Ont.

John E. Bassill and **Rufus W. Scott** were elected directors of American Bemberg Corp. and North American Rayon Corp., New York, at recent meetings of the boards of directors of the two corporations.

Jackson A. Woodruff and **Harry F. Creegan** have been appointed divisional heads of the Textile Research Department, American Viscose Corp., Marcus Hook, Pa.

Van B. Taunton, formerly head of the finishing department of Lanett Bleachery & Dye Works, Lanett, Ala., has been named head of personnel and public relations.

Dr. William McGehee, former head of department of psychology of the North Carolina State College, recently joined the Fieldcrest Mills, Spray, N. C., as director of personnel research.

Carl F. Horten, assistant controller of Nashua Mfg. Co., Nashua, N. H., has been appointed controller of Textron Southern, Inc. He will be succeeded in the Nashua position by **William H. Dobbins,** now in the treasurer's office of Textron.

Wallace Ayers, for 45 years identified with the Riverside & Dan River Cotton Mills, Danville, Va., most of that time secretary of the company, will retire on Mar. 1.

Alexander H. Wilson has retired as assistant superintendent and designer at Riverside Woolen Co., Stafford Springs, Conn. after 20 years in that position, and 50 years of association with the textile industry. He was presented with a purse from officers and employes. Mr. Wilson was at one time with Gilbertville Mfg. Co., Gilbertville, Mass.

Philip Gibney, formerly general manager at Saratoga, N. Y., for Van Raalte Co., has taken an executive post with Spencer Mills Corp., Fort Plain, N. Y.

J. L. Hall will be plant manager of the new Buford, Ga., plant of Chicopee Mfg. Co. **Max Green** will be office manager and **Loyce Moore,** plant engineer.

B. P. Albright has resigned as superintendent of the Unity and Oakleaf plants of Callaway Mills, LaGrange, Ga., to accept a position with American Yarn & Processing Co., Mount Holly, N. C.

J. Raymond Fish has resigned as plant manager of Suncook Mills, Suncook, N. H., a division of Textron, Inc.

Troy H. Sutton has been promoted from second hand to overseer of weaving at Bath Mills, Bath, S. C.

L. G. Boiko has left American Yarn & Processing Co., Mount Holly, N. C., to become superintendent of Dunderry Woolen Mills, Rockford, Ill., a division of Rockford Mitten & Hosiery Co.

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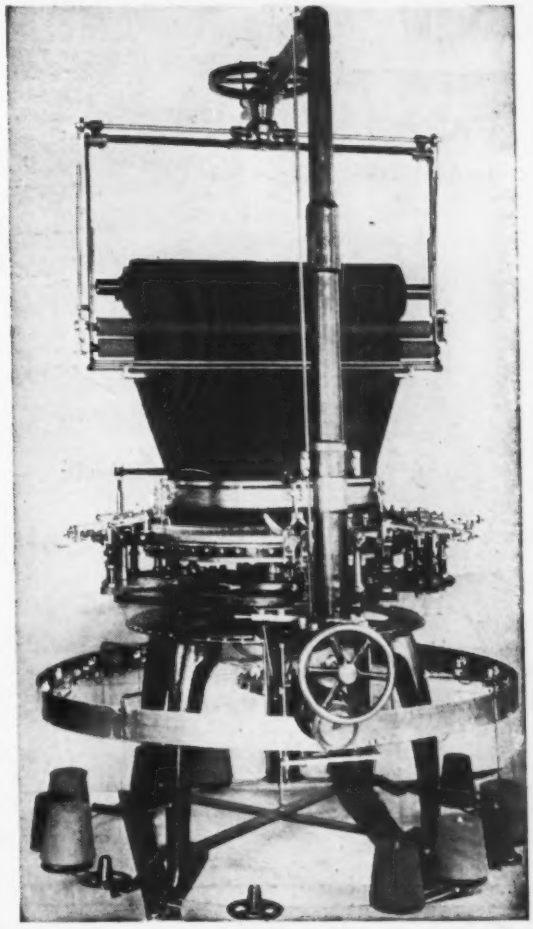

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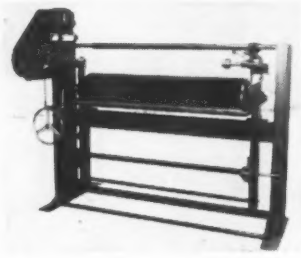

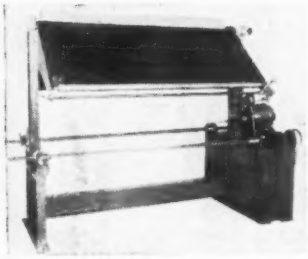

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NEWS ABOUT MEN

R. E. McTigue has been named general superintendent of the Unity Spinning and Oakleaf plants of Callaway Mills, with headquarters in LaGrange, Ga. **Jesse G. Maddox** has been made superintendent of the Unity plant and **Philip Cleveland**, superintendent of the Oakleaf plant. **Roy Mann** will join the USEO division as purchasing agent.

Charles S. Parsons, general manager of the Manchester, N. H., plant of Chicopee Mfg. Corp., has been made vice president in charge of manufacturing and a director.

Robert S. Berry, Jr., recently released from the Army, has been appointed assistant on production control to **J. F. Nicholl**, manager of the decorative-fabrics department of the Lumite division, Chicopee Mfg. Corp., Cornelia, Ga.

Tennyson W. Mann has been named office manager of the Duchess Throwing Co., Statesville, N. C., a subsidiary of Burlington Mills Corp. He replaces **John Wyrick**, now with Greensboro Weaving Co., Greensboro, N. C.

D. C. Turrentine, Jr., formerly superintendent of the Greer, S. C., plant of Victor-Monaghan Co., is now located in Greenville as assistant general manager of the company. He succeeds **B. S. Rose**, who resigned. **H. P. Glenn** has succeeded Mr. Turrentine as superintendent of the Greer plant.

A. J. Gould is now general manager of Westerhoff Fabrics Co., Paterson, N. J. He was formerly plant manager of Philip Weiss Corp., Scranton, Pa.

William Stewart has been appointed director of purchasing for Textron, Inc., with headquarters in the company's New York office. He had previously held a similar position with Pennsylvania Rubber Co., Philadelphia, Pa.

Ernest T. Dreher, formerly with American Viscose Corp., Marcus Hook, Pa., has been named head of the research department at Rhodhiss Cotton Mills, Rhodhiss, N. C. Mr. Dreher will direct all applied research operations at the plant in the cotton and rayon research division.

Charles E. Mears has been appointed plant manager of the new nylon-yarn plant now being built near Chattanooga, Tenn., by E. I. du Pont de Nemours & Co., Wilmington, Del.

Raymond L. White has resigned as general manager of Ford Mfg. Co., Waterford, N. Y.

Fred C. McDonald has been made manager of the blanket division of Portland Woolen Mills, Portland, Ore., and **Fred C. Schultze** has become assistant general manager.

E. F. Wyatt has resigned as head of the carding and spinning departments of Granite Falls Mfg. Co., plant No. 2, Granite Falls, N. C. He has accepted a similar position with Worth Spinning Co., Stony Point, N. C.

J. W. Russell has been appointed assistant superintendent of the Mutual plant of Textiles, Inc., Gastonia, N. C., succeeding the late A. H. Russell, his father. He had previously been overseer of the card room, where **M. B. Cloninger, Jr.**, has replaced him.

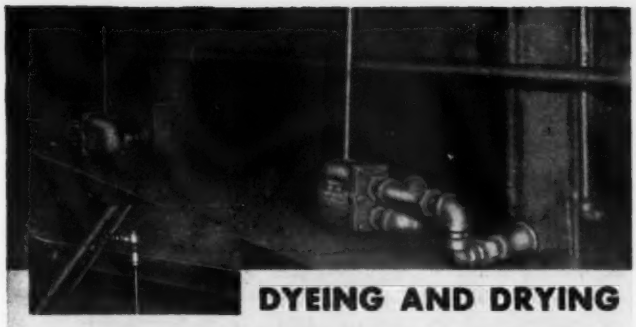
Arnold Crabtree has resigned from Northwood Novelty Yarns to become superintendent of the Alliance Processing Co., Philadelphia, Pa. He is in charge of the novelty-yarn division.

Richard M. Powell has been appointed superintendent of the Lonsdale Co.'s Lincoln Bleachery & Dye Works, Lonsdale, R. I. He succeeds **Ralph Carlson**, who has become manager.

Lionel Connell, formerly overseer of weaving at Atlantic Mills, Stottsville, N. Y., has joined Paragon Mills, Providence, R. I.

Neill Dalrymple has been named acting superintendent of the Fieldale, Va., towel mill of Marshall Field & Co. He succeeds **W. W. Lambeth**, who resigned.

Woodrow W. Lambeth, formerly superintendent of the Fieldale, Va., towel mill of Marshall Field & Co., Inc., has been appointed general superintendent and assistant manager of Virginia Mills, Inc., Swepsonville, N. C. He will also assist **Walter M. Wil-**



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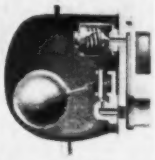
TR 21

H TRAP



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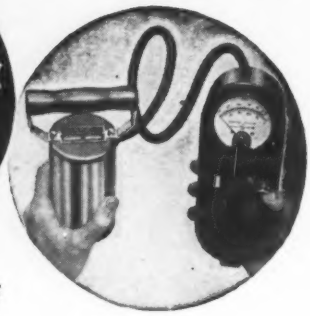

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liams, executive vice president. Other changes in the staff of Virginia Mills, Inc., include the appointment of **John W. Eagle** as superintendent of the cotton division and **Clarence R. Decker** as superintendent of the rayon division.

Joseph Minimi has been appointed head of the dyeing department of the H. T. Hayward division of Hayward-Schuster Woolen Mills, East Douglas, Mass., succeeding **Francis McNeice**, who is now boss dyer at Hockanum Mills, Rockville, Conn., a unit of M. T. Stevens & Sons Co. Mr. Minimi had previously been with Gay Brothers Co., Cavendish, Vt., where he was in charge of dyeing. **Michael Yerka** has been made assistant production engineer at Hayward-Schuster.

Edward Belair, formerly with Gonic Mfg. Co., Rochester, N. H., has become overseer of the spinning department of Miltonia Mills, N. H.

William Almar has been appointed finisher at the Minneapolis, Minn., and Lima, O., plants of North Star Woolen Mills Co. He succeeds the late W. V. Jernigan.

Jesse E. Phillips has resigned as general overseer of all yarn processing departments at the Nasonville, R. I., plant of Stillwater Worsted Mills.

Obituary

W. Harrison Hightower, of Thomaston, Ga., widely known textile manufacturer and business leader, died Feb. 9, in Atlanta, Ga. He was president of the Thomaston Cotton Mills, and a director of the Central of Georgia Railroad, Cotton-Textile Institute, American Cotton Manufacturers' Association, and Institute of Textile Technology. Mr. Hightower has served as president of the American Cotton Manufacturers' Association, president of the Cotton Manufacturers' Association of Georgia, and vice-president of the Cotton-Textile Institute. He conceived and was largely instrumental in the establishment of the Textile Education Foundation, Inc., which he served as president. His father established several large textile plants.

Charles F. Marble, 81, treasurer of Curtis & Marble Machine Co., Worcester, Mass., died in that city Feb. 7. Mr. Marble was born in Worcester and was graduated from Amherst College in 1886. He entered the company soon after and became its first cashier and later was elected to the directorate. Besides having several banking affiliations, Mr. Marble had been treasurer of the Fremont Casting Co., Worcester, since 1920. From 1925 to 1930 he was president of the Independent Industrial Schools, Worcester, and for many years on the board of trustees. Mr. Marble was also a member of the Foreign Policy Association and Worcester Economic Club.

Dr. Harold DeWitt Smith, prominent rayon technologist, died recently in Mexico City where he was enjoying a vacation. Dr. Smith had been treasurer of A. M. Tenney Associates, Inc., sales agents for Tennessee-Eastman rayon, since 1930. He was one of the leading authorities on cellulosic textile fibers. He was a sponsor of the Textile Research Institute and at one time president of that body. Dr. Smith was a frequent speaker before textile associations and his recent Marburg lecture has been much quoted.

Charles D. White, 85, president of Uncasville Mfg. Co., Montville, Conn., and founder of the Glen Allen Mill at Winchendon, Mass., died at Norwich, Conn., Feb. 12. Mr. White was born in Winchendon. His grandfather founded West Boylston Mfg. Co., and his father, Nelson D. White, founded the mill carrying his name in Winchendon in 1859. In 1891, Mr. White relocated in Connecticut and purchased the Uncasville mill.

Harmon O. Nelson, 67, for many years head of the engineering department of the Whitin Machine Works, Whitinsville, Mass., and an authority on twisting machinery, died Feb. 11. He had been with the Whitin organization 48 years.

Louis L. Wilson, president of Union Mfg. Co., Frederick, Md., manufacturers of full-

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fashioned hosiery, died last month.

Col. J. Ivan McSloy, 58, president of the Canada Hair Cloth Co., Ltd., St. Catherines Ont., Canada, died Feb. 8. He was vice president of Grout's, Ltd., of St. Catharines; of Valleyfield Silk Mills, Valleyfield, Que.; and of Canada Pad, Ltd., of Montreal. He served as an officer in both World Wars and was legendary in Eastern Canada as an athlete starring in hockey, baseball, football, track and especially in lacrosse.

O. Max Gardner, 64, U. S. ambassador to Britain and president of the Cleveland Cloth Mills, Inc., Shelby, N. C., died Feb. 6 in New York. He had been governor of North Carolina and interested in several textile enterprises. He was for a time Washington representative of the Cotton-Textile Institute.

George A. Dorr, 77, died recently in Newport, N. H., where he was president of Dorr Woolen Mfg. Co., which he founded.

Henry J. Herbst, formerly president of General Hosiery Co., Inc., Fort Wayne, Ind., died recently in Fort Wayne, Ind.

Joseph P. Gaut, 79, head of Gaut Textile Mills, Knoxville, Tenn., died Feb. 14, at Ft. Myers, Fla.

Thomas J. Kelly, 70, former operator of his own knitting mill in Saxtons River, Vt., and for the last 10 years superintendent of the yarn mill of Gloversville Knitting Co., Gloversville, N. Y., died recently at his home in Pittsfield, Mass.

Ralph Ramseur, for many years an official of Courtenay Mfg. Co., Newry, S. C., who retired several years ago, died in Anderson, S. C., Jan. 28.

Robert A. Macfarlan, 54, manager of the E. I. du Pont de Nemours & Co.'s finishes plant, Parlin, N. J., died Feb. 12. His brother, E. J. Macfarlan is connected with the company's Fabrics & Finishes Department.

Charles W. Eastwood, 64, executive vice president of the U. S. Gutta Percha Paint Co., Providence, R. I., died in that city on Feb. 6. He had been with the firm 48 years.

George H. Waring, for many years prominent in the financial side of the textile industry, died at Tiverton, R. I., on Feb. 8. He entered the industry in the employ of the Tuttle Milne Co., of Fall River, later organizing the George H. Waring Co. He was a dominant figure in the Arkwright, Conanicut, and American Linen Mills and heavily interested in mills outside New England.

George H. Pinney, 77, former treasurer of Glazier Mfg. Co., Glastonbury, Conn., wool goods manufacturers, died recently at Orange City, Fla.

Franklin Philip Finck, 57, manager of Delaware Hosiery Mills, Seaford, Del., died Jan. 24.

Eric C. Gyllensvard, export and New York office manager of Farrel-Birmingham Co., Inc., was killed on Feb. 17, in Sao Paulo, Brazil, while on a business trip to South America.

J. Howard Wood, 70, former secretary-treasurer of W. B. Davis & Son Hosiery Mills, Fort Payne, Ala., died Feb. 17. Mr. Wood operated his own mill at Lyerly, Ga., until ill health forced his retirement.

Emanuel Frohman, 62, founder of Precision Gear & Machine Co., Charlotte, N. C., died Feb. 8, in Miami Beach, Fla.

Rowland B. Ambrose, 53, vice president and sales manager of Portland Woolen Mills, Portland, Ore., died recently.

James T. Benham, treasurer of Dumart Textile Co., died recently in Douglaston, L. I.

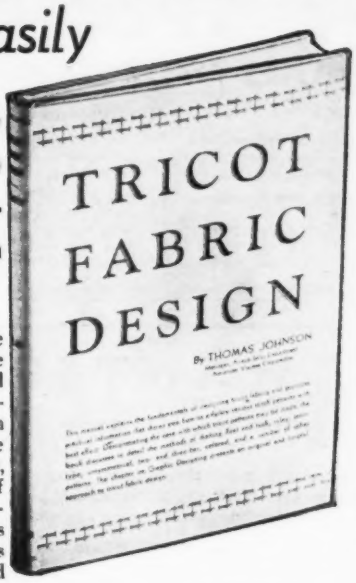
Clifford R. Wright, 52, vice president and marketing director of James Lees & Sons, Bridgeport, Pa., died Feb. 15 in Wynnewood, Pa. He joined Lees in 1929.

Clifford W. Dow, 74, wool buyer for Arlington Mills for more than 30 years, died recently at his home in Newton Highlands, Mass.

Charles F. Nicholson, 68, died Feb. 22 at Newark, N. J. Mr. Nicholson was at one time eastern manager for the manufacturing trade department of the Singer Sewing Machine Co., New York, which he had served for more than 30 years.

Robert K. Voigt, 65, veteran hosiery manufacturer, died Feb. 3 in New York. He was vice president and director of York United Hosiery Inc.

How to design tricot products *swiftly--easily*



Let this manual show you, step-by-step, the design of tricot fabrics in varying stitch patterns

Here's a compact, complete design manual showing the fabric designer, quickly and simply, the methods of designing tricot fabrics in varying stitch patterns. The manual demonstrates, first, the basic fundamentals of tricot fabric design. It describes how the fabric is formed, and the various stitch-making elements and their functions. It supplies diagrammatic descriptions of the actual machine process. The manual then provides a simple, easily understood *method* of drafting tricot patterns, demonstrating the ease with which tricot patterns may be made. Methods of drafting various types of stitch patterns—pique and corduroy, meshes and nets, gaiting, float and tuck, inlay, etc.—are included.

Just published!

TRICOT FABRIC DESIGN

By THOMAS A. JOHNSON

Manager, Aveco Sales Department, American Viscose Corporation

124 pages, 5½ x 9, 79 figures, $2.50

This manual supplies the basic design data and drafting methods that will enable you to explore all the possibilities of the tricot machine. It provides simply worded explanations and scores of careful diagrams illustrating actual drafts of various stitch patterns, covering all the basic elements of tricot fabric design.

The manual makes each machine factor that affects pattern design crystal clear, and points out such elements as the use of adjustable pattern wheels, or "stud wheels", how to increase the number of steps usable on the pattern wheel, and the possibilities of patterns including two-needle laps under the beads. It covers in short, concise chapters, a wide variety of possible stitch patterns, including single-, two-, and three-bar patterns.

Here are some of the details of pattern design the manual supplies:

- —stitch-making elements and their functions
- —how the pattern wheels function
- —description of wales, courses, revolutions and laps
- —how to draft the patterns
- —description of the warping operation
- —demonstration of open and closed stitches
- —possibilities for three-bar patterns
- —requirements in drafting colored patterns
- —how to control correct warp ratios
- —how to prevent runs and splits

See the book 10 days FREE • Mail the coupon

McGraw-Hill Book Co., 330 W. 42 St., NYC 18

Send me Johnson's Tricot Fabric Design for 10 days' examination on approval. In 10 days I will send $2.50, plus few cents postage, or return book postpaid. (Postage paid on cash orders.)

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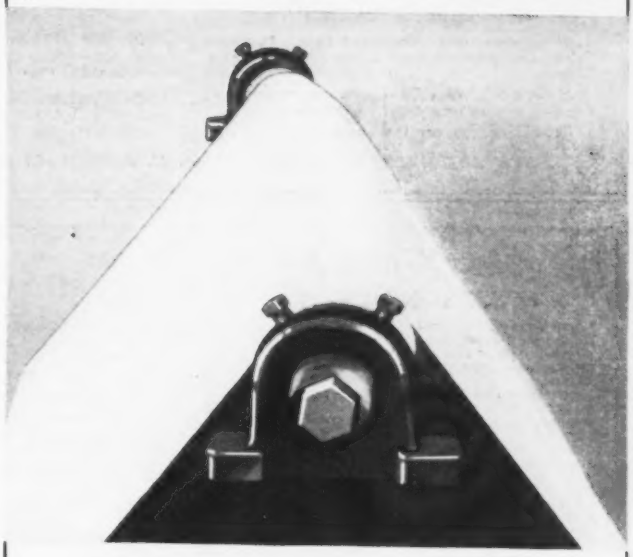
Mount Hope Free-Wheeling EXPANDER



All Widths Now Available

The free-wheeling idea of the Mount Hope Expander has proved so successful that we have now brought out a Heavy Duty type which can be used for all usual widths of cloth which are too wide or heavy for our Regular Duty type.

This expander has the same outside diameter of Neoprene sleeve as does the regular Free-Wheeling Expander, but has a 1½" axle instead of the 1 1/16" axle now used. It can be furnished to accommodate medium or heavyweight fabrics up to 120" face, or lightweight fabrics, paper or film, of even greater face.

Other advantages of the Heavy Duty Expander, as well as the regular Free-Wheeling Expander, *if used properly*, are as follows:—

Because the warp is subjected to minimum tension less bow than usual is required, resulting in extra long life for the Neoprene surface of the expander.

Expanders may be set at any desired angle to the cloth to adjust the amount of widthwise stretch produced.

Ball bearings, grease packed, are securely mounted in steel spools to outlast many Neoprene sleeve coverings, and so designed that they cannot stick nor turn on the axle and cut it.

These Expanders are suitable for all fabrics from rayon marquisette to tire cord and also for plastic film and paper.

MOUNT HOPE MACHINERY CO.

42 Adams St., Taunton, Mass.

Representatives — John H. Andresen, Inc., 138 Grand St., Paterson, N. J.; Ingalls Engineering Co., 1214 Union Trust Bldg., Providence, R. I.; Slaughter Machinery Co., Charlotte 1, N. C.; Sidney Springer, 316 East Commercial Street, Los Angeles 12, California; W. J. Westaway Co., Ltd., Hamilton and Montreal 3, Canada.

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NEW ADVERTISEMENTS received by 10 A. M. April 1st will appear in the April issue, subject to limitation of space available

Men Wanted
POSITIONS OPEN

Rayon weaving plant superintendent
Woolen yarn superintendent
Worsted designer and boss weaver combined
Worsted yarn superintendents, Bradford and French systems
Supt. dyeing and processing cotton warps and yarn
Raw stock dyer (carpet mill)
Jacquard weaving superintendent
Superintendent and designer rayon weaving mill
Assistant superintendent and designer plush mill
Superintendent rayon acetate weaving plant So. America
Superintendents for woolen and worsted men's wear and dress goods mills
Assistant supt. and designer worsted dress goods
Superintendent rayon and throwing plant
Pile fabric mill superintendent
Silk throwing foreman
Salesmen shoddy and garnetts (2)
Colorist foreman print works
Textile school graduate N. Y. mill office
Time study men $60-$75 week
Chemists and chemical engineers
Boiler room foreman
Chief power engineer (mid-West)
Master mechanic-chief engineer Pacific coast
Foreman putting-up department, cutting, stitching, power sewing machines (cotton goods)
Woolen carder $100
Office manager with finishing plant office experience
Overseers for worsted carding, combing, scouring, drawing and spinning
Overseer top dyeing and blending
Junior cost accountant $300 month
Finished percher
Boss spinners, mules and frames
Second hand cotton carding $1.25 hour, overtime
Boss spinners, cotton and woolen
Overseer velvet weaving and shear expert on carpets
Structural and mechanical designers
Worsted yarn dyer
Boss spinner, rayon and silk
Leather apron maker
Textile school graduate for dyeing and finishing depts. (synthetic yarn fabrics)
Boss dyer rayon and acetate fabrics $80-$100 week
Second hand woolen carding $60
Second hands wet and dry finishing, worsteds and woolens $60-$100 week
Jacquard loom fixer
Second hand weaving, acetates
Crane knitting machine fixer

CHARLES P. RAYMOND SERVICE, Inc.
294 Washington St. Boston, Mass.
Over 45 years Confidential Employment Service for Textile Mills

TEXTILE MILLMAN WANTED

Executive type capable of designing and constructing knitted wool coatings from raw stock to finished cloth . . . substantial salary and fine opportunity for a future with an expanding and progressive mill. Write stating full qualifications and background.

P-138, Textile World
330 West 42nd St., New York 18, N. Y.

EXPERIENCED SLASHER

"Man with practical experience on rayon or cotton slasher. Must be capable of handling open type, double hook reeds. State hourly wage desired. Excellent opportunity with rapidly expanding organization."

P-139, Textile World
330 West 42nd St., New York 18, N. Y.

TEXTILE SCHOOL GRADUATE
As Assistant to plant manager

In modern rayon weaving mill. Pennsylvania location, good opportunity long established firm. State complete background, qualifications, and salary. Our employees notified of this advertisement.

P-151, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED

A young man as assistant designer in modern equipped western woolen mill.

Must be textile school graduate, prefer man with some experience. Must be ambitious and desirous of learning practical manufacture of woolen fabrics. Excellent opportunity for the right man.

Give complete qualifications as to education, age, experience and references.

ROCK RIVER WOOLEN MILLS
Janesville, Wisconsin

POSITIONS VACANT
(Additional Position Vacant ads on opposite page)

HAND LOOM Operator to set up, install, and instruct in operation of hand looms. State salary and experience. Ainslie Knitting Machine Co., 750 Grand St., Brooklyn, N. Y.

TEXTILE ENGINEER needed by large Eastern Industrial Corporation. Work involved is specialization in Textile Machinery, particularly yarn windup, packaging, etc. Job requires extensive experience and creative ability along machine development lines. Textile school graduate desired or Mechanical Engineer from an accredited college with textile machinery experience. Prefer age 28-35 years. Salary will be commensurate with applicant's general abilities along developing lines. In application include age, education, experience, and expected salary. P-140, Textile World, 330 W. 42nd St., New York 18, N. Y.

WANTED: LOOMFIXER foreman on velvet looms for mill situated in the South. Steady position, excellent wages, and fine opportunity for advancement. Only those experienced on velvet need answer. P-125, Textile World, 330 W. 42nd St., New York 18, N. Y.

MANAGER WANTED. Experienced on velvets or plushes. Must be textile school graduate. Must have from seven to ten years experience as mill manager. Write The Velvet Textile Corporation, P. O. Box 1962, New Haven, Connecticut.

MEN EXPERIENCED on inside work of hosiery knitting or lace machines. Liberty Fabrics, 900 East 229th Street, N. Y.

SELLING OPPORTUNITIES WANTED

WANTED SALESMAN—Calling on Carpet Industries to carry side line of Cotton Bands. Write Corde Twisting Machine Co., 97 Cortlandt St., No. Tarrytown, N. Y.

SALES REPRESENTATIVES Wanted: Manufacturer of complete line of chemical specialties offers good opportunity for experienced salesmen. Territories open—New England, Pennsylvania, Metropolitan New York and the Carolinas. Give complete information—include age, selling experience, education, etc. SW-116, Textile World, 330 W. 42nd St., New York 18, N. Y.

(Continued on opposite page)

REPRESENTATION FOR BRAZIL

Wanted by large Brazilian company for American Textile Machinery and Accessories. Will also purchase Accessories for stock.

Please write to:
TECNICA E COMERCIAL SANTA LUZIA LTDA.
CAIXA POSTAL, 2670 SAO PAULO BRAZIL

DYER

Established Pennsylvania mill has opening for experienced dyer on rayon and cotton blended fabrics. Must be able to take complete charge. Reply held strictly confidential.

P-137, Textile World
330 West 42 St., New York 18, New York

WANTED

Textile Engineers

Engineering firm, New York City, requires textile engineers . . . One for U.S.A. and one for overseas. Must be graduate textile engineers with extensive experience in all phases of Cotton Mill operation including plant layout, technical and practical operating aspects.

First letter must give complete details of education, experience, salary desired and recent snapshot.

Long term opportunity . . . salary commensurate with qualifications.

P-155, Textile World
330 West 42nd St., New York 18, N. Y.

GENERAL MANAGER
Southern Textile Mill

"To assume chief executive responsibility for management of modern mill producing cotton cloth and drills and for administration of mill village. Southerner, textile school graduate. Salary up to $20,00 plus bonus."

P-156, Textile World
330 West 42nd St., New York 18, N. Y.

Don't forget the

BOX NUMBER

When answering the classified advertisements in this magazine don't forget to put the box number on your envelope. It is our only means of identifying the advertisement you are answering.

WANTED
Cutting Room Foreman

One who is familiar with quality lingerie. Give full information as to experience and other qualifications.

Write—"Cutting"
c/o Textile World
Rhodes Haverty Building
Atlanta, Georgia

(Continued from opposite page)

EMPLOYMENT SERVICE

EXECUTIVES—$5,000-$25,000. Your personal requirements in negotiations for better positions everywhere met via our individual procedures. Strict confidence assured. Details on request. Jepson Executive Service, 235 Porter Building, Kansas City 2, Missouri.

POSITIONS WANTED

TIME STUDY Trainee. Veteran. 1946 college graduate, math., accounting, and industrial management. Recent needle industry time study, wage incentive, production planning experience. Desires position with consulting firm or reputable manufacturer. PW-115, Textile World, 330 W. 42nd St., New York 18, N. Y.

PERSONNEL MANAGER. Many years practical experience in Southern Textile Plants plus recent college course in modern personnel management. PW-141, Textile World, 330 W. 42nd St., New York 18, N. Y.

SERVICES AVAILABLE young man with 18 years experience as textile designer and 5 years experience in mechanical engineering, highest recommendations. Desires position of responsibility with progressive firm. PW-142, Textile World, 330 W. 42nd St., New York 18, N. Y.

EXECUTIVE'S ASSISTANT, age 25, B.S. degree in Textile Engineering, Designing and Management. Now employed as assistant mill manager in woolen and worsted weaving and finishing plant. Special skills include production control, cost analysis, designing and laying out fabrics, handling personnel with excellent results. PW-126, Textile World, 330 W. 42nd St., New York 18, N. Y.

PRODUCTION MAN with mill, technical and commission weaving experience desires change of position. Conversant with Jacquard and shaft fabrics in national and synthetic, dyeing and converting including prints. Reliable, with record of proven ability. PW-143, Textile World 330 W. 42nd St., New York 18, N. Y.

TEXTILE ENGINEER, young, Lowell textile graduate, experience: mill, research, quality-control, designing, converting—with prominent firms, just discharged. PW-144, Textile World, 330 W. 42nd St., New York 18, N. Y.

EXPERT JACQUARD fabric manufacturer, textile graduate, 23 years experience on upholstery, drapery, bed spreads, linings, and dress goods. Competent loom man, Jacquard and dobby designer, and comprehensive experience in all departments. Thorough knowledge costs and wage incentives. Employed past six years as mill manager for leading upholstery producer. Can produce results. Desires connection with firm needing these qualifications. Sound reasons for changing. PW-145, Textile World, 330 W. 42nd St., New York 18, N. Y.

ASSISTANT SUPERINTENDENT with Woolen-Worsted Mill. 19 years experience in weaving, scouring, dyeing. Able to design. Fully familiar with wool and wast blends. Good background of preparatory and finishing operations. 5 years textile school. Age 40. Married. PW-146, Textile World, 330 W. 42nd St., New York 18, N. Y.

SELLING OPPORTUNITIES WANTED

WHOLESALE DISTRIBUTORS and importers occupying their own building seek for import into Canada all types of dress trimmings, textiles, braids and laces, buckles and buttons. Highest of references both banking and trade will be given to interested parties. RA-148, Textile World, 330 W. 42nd St., New York 18, N. Y.

AVAILABLE
WEAVE ROOM OVERSEER

8 YEARS' EXPERIENCE.

Experienced Fixer on Draper Cam & Dobby Looms Weaving Synthetic Fabrics. Knowledge on analyzing and designing.

PW-157, Textile World
330 West 42nd St., New York 18, N. Y.

Overseer of Weaving Available

Eighteen yrs. experienced on C&K automatic looms also drapers, on fancy woolens, worsted and cottons. Will consider second hand job on day shift. Age 43, married, A-1 references.

PW-153, Textile World
330 West 42nd St., New York 18, N. Y.

Available—Silk or Synthetic Fibre
MILL SUPERINTENDENT

35 years experience manufacturing broad goods of all kinds (plain and fancies). Thorough practical knowledge of looms and other equipment. Good personality. Well experienced in labor relations.

PW-121, Textile World,
330 West 42nd St., New York 18, N. Y.

WORSTED YARN SUPERINTENDENT
(Bradford System)

Desires change for excellent reasons. Has had 25 years experience on all counts and grades of yarns for carpet, weaving and knitting in single and ply yarns. First class references as to ability. Can handle help and get results. For interview write

PW-134, Textile World
330 West 42nd St., New York 18, N. Y.

SELLING OPPORTUNITIES WANTED

WELL-ESTABLISHED Australian Textile Agents wish to represent American suppliers of piece-goods. Contact "860" c/o Box 1627, G.P.O. Sydney.

WELL ESTABLISHED Australian Textile Agent wishes to contact American exporter of cottons and rayons. "84" c/o Gordon & Gotch, Sydney, Australia.

AUSTRALIAN ORGANIZATION capable of handling very considerable quantities on own account and on agency basis wishes to contact American manufacturers of cotton and rayon dress good (in loomstate and finished) and furnishings with a view to taking over agency. Managing director to arrive in America during March. Write No. "2350" c/o Gordon & Gotch, Sydney, Australia.

SPECIAL SERVICE

Visualized Creative Thinking
TWO-MAN team of New York artists can service one or two additional advertisers. SS-147, Textile World, 330 W. 42nd St., New York 18, N. Y.

CONTRACT WORK

AUSTRALIAN CONVERTERS and wholesalers specialists in textile piecegoods for ladies' wear and furnishings seeks co-operation of American converters on a profit-sharing basis. We wish to conclude agreement with American converters to convert textile piecegoods in America according to Australian specifications on basis of firm orders with mutual finance and profit-sharing interest. Urgent reply required as one of our directors is proceeding to U.S.A. shortly to finalise any negotiation. Write No. 2347 Gordon and Gotch, Sydney, Australia.

Business opportunity Advertising—page 266
Wanted Advertising pages 266 & 274

SELLING AGENCY WANTED
Woolen And/Or Worsted Mill

Young, progressive Selling Agents, now representing one of country's finest and oldest vertical mills, producing quality woolens and worsteds, present volume approx. $2,500,000; desirous adding non-competitive mill.

Have attractive, centrally located sales office, strong staff, covering entire country, also doing volume export business through own agents.

RA-133, Textile World
330 West 42 St., New York 18, New York

REPRESENTATION FOR BRAZIL

Wanted by large Brazilian company for American Textile Machinery and Accessories. Will also purchase Accessories for stock.

Please write to:
TECNICA E COMERCIAL SANTA LUZIA LTDA. CAIXA POSTAL 2670—SAO PAULO BRAZIL

SALES REPRESENTATION

"Young man familiar with textile processes and managing personnel of manufacturing and finishing plants in the Carolinas wants sales representation contract with reliable machinery or supply manufacturer. Ability can be shown by past sales records in this field—Confidential."

SA-993, Textile World
330 West 42nd St., New York 18, N. Y.

ARGENTINE

well introduced manufacturer's agent wants representation of

COTTON YARNS combed and carded
ART SILK YARNS
TEXTILE MACHINERY

P. J. NEUMEYER
BUENOS AIRES SANMARTIN 235
Cable Address: Tapitex

PROFESSIONAL SERVICES

LANCASTER, ALLWINE & ROMMEL
Registered Patent Attorneys
Suite 448, 815-15th Street, N.W., Washington 5, D.C
Patent and Trade-Mark Practice before U. S. Patent Office.
Validity and Infringement Investigations and Opinions.
Booklet and form "Evidence of Conception" forwarded upon request.

WANTED TO EXPAND

Small company with large potential orders and splendid possibilities desires to associate itself with established textile company—one with its own spinning plant preferred, for manufacturing of new yarns to be put into products having large demand in many industries and different fields.

Box 135, Textile World
330 W. 42 St., New York 18, N.Y.

FOR SALE

COMPLETE REVERSIBLE CHENILLE RUG WEAVING PLANT

For the Manufacture of Complete Sets Rugs and Lid Covers For Bedroom and Bathroom. For Further Information Write

FS-130, Textile World, 330 West 42nd St., New York 18, New York

---

Desirable Floor Space

Available latter part of 1947, 1 floor 18,000 sq. ft., located in Eastern part of Pennsylvania. Over-night trucking service to New York and Pennsylvania. Suitable for screen printing or automatic loom weaving. Sufficient local labor and experienced weavers (male and female).

RENT REASONABLE

ARROW THROWING RAYON CO.
Falls Ave. Hawley, Pa.

Wanted
INDUSTRIAL ENTERPRISE
CASH PAID

BY FOR CAPITAL STOCK or ASSETS

large financially powerful diversified organization wishing to add another enterprise to present holdings.

Existing Personnel Normally Retained

Box 1222 1474 B'way, N. Y. 18, N. Y.

WEAVING EXPERT

With all around experience in synthetics, natural silk & cotton yarn and a record of successful management, *will invest* moderate amount and *take over mill management.*

BO-150, Textile World
330 West 42nd St., New York 18, N. Y.

FOR SALE

Complete Modern Cotton and Rayon Dye house, Bleachery and Finishing Plant as a going business, now in full operation. Approximately 100 miles from New York City, in large city. High pressure boilers, modern buildings. For immediate delivery.

FS-127 Textile World
330 West 42 St., New York 18, N. Y.

DYESTUFFS

Will buy your surplus and obsolete dyes and chemicals for cash.

NEW ENGLAND PRODUCTS CO.
91 Oliver St. Boston, Mass.

Commission Throwing

Have facilities available to throw 2,000 lbs per week of Acetate or Viscose from cones, cakes or no-twist tubes, into warp or voile twist.

Delivery can be made on spools or cones.

CW-160, Textile World
330 West 42nd St., New York 18, N. Y.

YARNS WANTED

Wanted to purchase surplus yarns of all types — cotton, rayon, acetate, nylon, silk, wool, spuns, and blends.

W-947, Textile World
330 West 42nd St., New York 18, N. Y.

FOR SALE
CARPET YARNS

All wool. Solid shades or Moresque. 2, 3, or 4 ply. Tubes or cones. Big production, good deliveries.

FS-996, Textile World
330 West 42nd St., New York 18, N. Y.

YARNS WANTED
FOR CASH

All types—Cotton, Rayon, Acetate Natural, Tinted or Dyed.

Address:
W-994, Textile World
330 West 42nd St., New York 18, N. Y.

COMMISSION SPINNING

Commission spinner wanted to spin dry combed tops on French system or modified cotton system, counts 1/24's and 2/18's. Write stating full particulars, including price and delivery.

CWA-128, Textile World
330 West 42nd St., New York 18, N. Y.

Organzine Throwing
Immediate Delivery

On Organzine from Fortison, Acetate, Acele or Bemberg Yarns.

Delivered in skeins, spools or cones.

ARROW THROWING RAYON CO.
Falls Ave. Hawley, Pa.

SELL NOW! PRICES ARE HIGH!

Chemicals, Dyes, Gums, Oils, Waxes, Greases, Pigments, Residues, By-Products, Wastes

CHEMICAL SERVICE CORP.
84 Beaver St. New York 5

"COMMISSION RIBBON WEAVING WANTED"

on gros grain ribbon, up to three inch width; or other narrow fabrics.

CWW-149, Textile World
330 West 42nd St., New York 18, N. Y.

KNITTING MACHINES
Wanted Immediately

12 dozens Plain Flat Machines on Stand 10gg 32 inch bed
4 dozens Rashell Machines 24gg 96 inch width

Airmail catalogue, samples. Holding license.

Terms L/C. C/A.
Arthur Importers Ludhiana
ARTHUR & COMPANY
Importers, Exporters
LUDHIANA, INDIA

Commission:
Warping and Winding of Silks and Rayons.

EUREKA WARPING & WINDING CO.
21 Lewis St. Pawtucket, R. I.

Corn Starch
WANTED
IN BULK
CAR OR TRUCKLOAD

W-154, Textile World
330 West 42nd St.,
New York 18, N. Y.

WANTED
BRINTON SCARF MACHINE

11" and 12" scarf machine, sinker top with automatic attachment. Four cam blocks; no yarn changer needed. Reply to

W-132, Textile World
330 West 42 St., New York 18, New York

FOR SALE
COTTON YARN

Available for export.
Sizes 6/1 up to 80/1. Inquiries Invited.

HENRY GREENBERG
116 Broad St. New York 4.
WH. 3-7185-6-7

Additional Wanted Advertisements on page 274

He took a loss of $100 a day for 800 days

so great was his faith in the future of the American stocking industry...

HERE IS MR. AMOS A. LAWRENCE, whose stocking mill at Ipswich (in 1868) had to fight the handicaps of crude machinery, unskilled labor and the preference of the American women for imported English hosiery. The first stocking machine was smuggled into America, packed in salt, as there was a fine of 500 pounds sterling for exporting such equipment from England. Mr. Lawrence's dogged persistence and his faith in the future was well justified by the subsequent growth of the American hosiery industry!

MLC SERVING THE TEXTILE INDUSTRY MLC

1—C&M 2-cylinder Brushing machine 72"
3—Button Breakers, 2-48", 1-50"
2—45" Textile Finishing Machine Co. 6-bowl Calenders
2—54"x60" D&F 2-cylinder iron Shoddy Cards with feeders
1—Lot Numerous Card Parts
1—60" P&W Doubling, Boarding and Winding Machine
1—Set 20 H.W. Butterworth 108" Dry-Cans, dryer
1—Reeves Drive, Range 3-1, Size 6, Class G
1—54"x54" Taylor Wadsworth Batch Type Waste Duster
2—26" Tolhurst Extractors, belt driven
1—30" American Laundry Extractor
7—40" and 60" Tolhurst Extractors
1—45" Dobson & Barlow Cotton Feeder
4—40", 42" E&H Flat Folders with take-up stands
1—100" C&M Flat Folder, motor driven with hydraulic lift and roll-up stand
15—40", 80" Card and Napper Grinders
6—40" Draper Model X Automatic Looms, 45" reed space, lacey tops, with motors
200—40" & 42" Draper Model K Automatic Looms, with dobbies
24—44" Stafford 49½" reed space Dobby Shuttle Change Looms, with motors
2—45½" C&K 4x1 non-automatic, motor driven Looms with silk rool take-up
110—45½" reed space Modified E Draper Looms with lacey tops, 3 bank stop-motions, worm take-up, belt driven
1—48" C&K 4x4 box Loom, 25 harness, belt driven, friction clutch
49—54½" reed space C&K 4x1, 2x1, 1x1 Looms, 20 and 25 harness, belt driven
2—72" Heavy Duck Looms, roller top, 2 harness
14—82" C&K 2x1 automatic Looms, 8 harness cam motions, motor driven
1—92" C&K 4x4 Box Looms, 25 harness, friction clutch drive

COMPLETE MILL UNITS
A Six Set Woolen Yarn Mill
A Woolen Piece Goods Dyeing & Finishing Plant
48 Loom Rayon Weaving Plant—44" & 46" Looms, etc.
20 Loom Rayon Weaving Plant—46" & 52" Looms, etc.

10—92" C&K, 4x1 Automatic Looms, 8 Harness, Cam Motion, Motor Driven
1—44" C&M Measuring Machine, 60 yd. dial
1—64" P&W Measuring and Woolen Cloth Winder
1—66"x23" P&W 60 yd. Measuring Machine, sanded roll, belt driven
1—66"x24" P&W AWC Measuring and Folding Machine, 100 yd. counter and folder
1—12 Pole Smith Drum Skein Mercerizer
2—240 spindle D&F 2" gauge, 10 jack spool Drums
4—240 spindle J&B 1⅞" gauge Mules
75—New Leland 1+ HP 3/60/220V Heavy Duty Motors
27—New ½ HP 3/60/220V Motors Also various size Rebuilt Motors
1—61" Woonsocket 2-cylinder Napper, 20 rolls to each cylinder, gear driven rolls
4—80" D&F 20 roll Single and Double Acting Nappers
1—30x30" Mezzera Wool Opener with grid and 25" feed apron, wire good
1—45" 2 roll Padder, rubber rolls
2—40" Kitson Breaker Pickers, motorized
3—40" Kitson Finisher Pickers, motorized
4—40" Kitson Single Process Pickers
1—42" Olsham Fearnaught Picker
2—48" Parkhurst Burr Pickers
2—48" C.D. Sargent Burr Pickers

1—54" Werner Single Color Printing Machine
6—52", 35½", 66", Voelker and Gesaner Single and Double Bed Rotary Cloth Presses
10—50 spindle Lindsey-Hyde Adjustable Reels
1—60" P&W Single Blade Smooth Woolen Shear
1—60" C&M Single Blade Plush Shear
2—60", P&W Single Blade Woolen Shears
11—65½" P&W 2-blade Shears, Model B
1—76" C&M Double Blade Shears
1—42" C&M Singer with hood
3—Lowell 2-cylinder Slashers
35—208 spindles Fales & Jenks 2¾" gauge, band driven Spinners, some 1⅝" ring, balance 1 11/16" ring
4—252 spindle Whitin 2" ring, 3" gauge, tape drive, long draft Spinners
1—32½" D&F Jack Spool Winder
6—Smith and Furbush Spoolers, 44" drums, 48 ends, 44½" long spools with 10" head. Complete with spool stands
1—80' Butterworth Clip Tenter with top opening, brass faced clips, 60" opening
1—74' Butterworth Clip Tenter with top opening, brass faced clips, 76" opening
1—60" C&M Single Brush Tiger
50—80 spindle Hopedale band driven twisters 4½" ring, 5½" ga. Belt driven
4—8-string Hemmer Wool Washers
1—80 Spindle Foster Tube Winder
5—100 spindle Foster Model 21A Tube Winders
2—60" P&W Winders with stencil attachment
31—100 Spindle Foster Model 12 Tube & Cone Winders
2—92" D&F Pinless Type Warpers with beamers, Jack Spools, Creels, Reed Stands and Dressing Frames

MACHINERY LIQUIDATING COMPANY
OPA REGISTRATION NUMBER 789
EST. 1923
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SPECIALISTS IN SELLING AND PURCHASING TEXTILE MACHINERY, ACCESSORIES AND MILL SUPPLIES

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4 Savpe — 28 & 24 Gauge
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Individually Motorized 168" Machines. Excellent condition. Fully equipped—Bobbins included with machines. For Rayon, Cotton, Silk and Nylon.

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Narrow Fabric — 1900 Model, Indv. Motorized 1½ H.P., Cam Motion 16 Space, Battens, 15' 8"

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168" Machines. All Individually Motorized. 28 Gauge — 2 Bar Type. Can be used for Rayon, Cotton, Silk and Nylon.

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225-2-5 Fiberglass

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20 Spindles Each — Individually Motorized — Flat Quill Attachments. Bunch Builders Set Up for Wool and Cotton.

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30,000 Fibre, 2⅝" Head—5" Trav.
25,000 Fibre, 2⅜" Head—4" Trav.
55,000 Metal, 3" Head—5" Trav.
25,000 Fibre, 5B, 2⅜" Head—4" Trav.
30,000 Fibre, 2⅝" Head—3⅝" Trav.
100,000 Fibre, 2½" Head—3⅜" Trav.
20,000 Fibre, 2¾" Head—3⅜" Trav.
10,000 Fibre, 3⅜" Head—4¾" Trav.
12,000 Fibre, 2¾" Head—3⅞" Trav.
7,000 Fibre, 5B, 2¼" Head—4" Trav.
25,000 Fibre, frictionless, 2½" Head, 3½" Trav.
5,000 Bakelite, 2½" Head—5¼" Trav.
10,000 Wood, 3½" Head — 6" Trav.
Many others too numerous to list.

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3—Sipp Double Deck Winders 120 Spindles Each
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1—20" Gerry Opener
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1—36" Sargeant Burr Picker
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1—Whitin 180 sp. 2½" ring Woolen Spinning Frame
1—J. H. Horne Rag Washer, New
10—C & K 92", 30 Harness 4 x 4 H W Looms
4—Draper 72", 16 Harness Auto, Looms, Model H
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1—Hunter Single Strand Soaper
1—Windle 66" Fold. & Meas. Machine
1—Gessner 18 roll, 80" D.A. Napper
1—Fidelity Bottle Bobbin Winder
1—Rodney Hunt 12' Slack Washer
2—Smith-Drum Mercerizing Ranges
2—Royal 600 hook Card Cutters
4—L & G Chenille Cutters
2—S.F. Yarn Sizers & Dry Cans
1—P & W 66", Plush Shear
1—P & W Mod. Double Cloth Shear
1—Voelker 65" Cloth Press
1—Gessner 66" Jumbo Cloth Press
1—E & H Flat Yard Folder, 66"
1—Woonsocket 80", 20 roll D A Napper
1—Fletcher 60" Underneath Motor Driven Extractor
1—Set 72" Rubber covered Squeeze Rolls
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2—Johnson & Bassett extra heavy pattern high speed mules. 2¼" gauge, 300 spindle, equipped with motor drive complete, new September 1936. Also approximately 6,000 13½" bobbins to fit above mules.
1—Davis & Furber, Model 44, compression spooler, electric stop motion and bobbin stands. Complete with motor and drive.
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1—Windle 66" full width measuring and winding machine, equipped with motor drive complete, new 1934.

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8—Woonsocket 8 x 4 Roving Frames.
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1—Sargent Burr Picker.
2—Cotton Pickers.
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4—Prince-Smith Twisters, 180 sp, 3½" pitch, 2½" caps.
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1—New Cocker High Speed Warper.
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2—Foster #12 Winders.
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25—C&K 100" & 110" Blanket Looms, md.
35—C&K 92" 4 x 1 auto. Looms, md.
6—C&K 76" Worsted Looms.
36—C&K 68" Silk Looms.
50—Draper Worsted Looms, 72", Model D.

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1—Pressure Dyeing Machine.
1—Riggs & Lombard Wool Washer.
1—Rodney Hunt Slack Washer.
4—Stainless Steel 60" & 66" Dye Jiggs.
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1—R. B. & F. 48" Single Color Printer
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MOTORS, ¾ to 5 HP AC/DC 220 volt
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PAD, 2 roll 80"
PALMER 62"
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PRINT MACHINE, 6 color 60"
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TUBER, V.V. with doubling attachment
WARP COMPRESSOR CREEL
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WOOL WASHERS, J. Hunter 6'

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16" x 54" Reed Prentice Model AA 18 speed—Geared Head—Latest type and design—1941 Mfg.—Excellent

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16" C-O—Floor—MD—NEW
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#2K K&T "Milw" Plain—1942
#4 Cinc.—Plain—Dial Type—1942
#2G Kempsmith Universal—1943
#2MH Cinc. Plain—1942
#22L Van Norman—Univ.—1941
#2 Cinc. Univer—4 speed drive—MD
Miller & Crown. Hand—MD

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MISCELLANEOUS

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36" Pexto Power Squaring
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EL—Die Filer Harvey "Butterfly"
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1 Scott (hand oper.) Cloth & Yarn Tester.
18 C&K 82" 4x4 Looms—25 harness, belt drive.
1—62" P&W Doubling & Inspecting Machine.
6 Chinchilla Machines.
1—(New) 48" Clark Mixing Picker, 6 bar, table feed.
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Two Fearnaugh pickers.
Two dusters John Pettie make one a two cylinder machine and one a single cylinder machine.

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1—36" 2 Roll Pad—geared
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2—54/54" Two Roll Batches
2—50" single Roll Batches
1—45" single Roll Batches
1—50" 5 Roll Calender—Screw & Lever
1—36' Hydr. Calender—Hand Pump & Accumulator
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1—54" Baby Palmer & Blanket (Gen. Mche Co.)
1—50" 2 Roll Morrison Quetch
1—Riggs & Lombard 4 Box Woolen Washer 60" with 5 Boxes having 36" rings
1—Rayor & Lincoln Rotary Sewing Machine
1—Watson & Stillman 3 Cyl. Hydraulic Pump
3—Watson & Stillman Hydraulic Hand Pumps
Rubber Rolls from 30" to 70" wide
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4—Reading Footers, equipped to make Misses stockings; 2, 45-gauge 24-section and 2, 51-gauge, 26 section.
6—Wildman, 42-gauge; 2, 20-section Footers, 4, 24-section Leggers
50—Scott & Williams Model K, 320-needle machines.
1—Smith-Drum single arm Cascade type Skein Dyeing Machine
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6,000 Spindles

MAY BE INSPECTED IN OPERATION

Cotton Mill Available

4000 and 20,000 Spindle Spinning and Weaving Mills.

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1—Winsor & Jerauld Tenter Frame, 40'.

1—Set horizontal Dry Cans, 23 Copper Cans to set, 105" wide.

1—Set Vertical Dry Cans, 40 Copper Cans to set, 105" wide.

1—Butterworth 50" Dye Jigg, Stainless Steel, with motor.

1—Van Vlaanderen 54" Quetsch, 2 roll, Ball Bearing, Rubber Rolls, with motor.

1—Hennekin Tuber, 50", 1 rubber covered roll, ½ HP Motor.

1—Elliot & Hall 52" Flat Folder.

4—Dye Jiggs, 54".

1—Van Vlaanderen 3 roll Quetsch, all rubber rolls, 50" wide.

1—Set James Hunter Squeeze Rolls, 17" width, top roll rubber, bottom roll brass.

4—Saturating Tanks, James Hunter Machinery Co. rubber lined, 60" deep, 52" long, 42" wide, equipped with rubber covered bottom rolls.

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1—60" Van Vlaanderen Tuber.

2—50" Van Vlaanderen Tubers.

SPECIAL OFFERING OF LOOMS

24—Draper Automatic Bobbin Changing Looms, Modified Model D, 20 harness 69½" Reed Space, Rebuilt in 1937.

2—3 Cylinder 48 x 48 Woolen Cards.

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7—John Hope 50" Pantograph Machines.

10—John Hope 48" Pantograph Machines.

1—John Hope 45" Pantograph Machine.

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7—Rice, Barton & Fales Printing Machines:

1—8 Color, 64"
3—8 Color, 48"
1—5 Color, 54"
1—4 Color, 48"
1—3 Color, 45"

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6000 Spindle Woolen Spinning Mill Machinery below

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1—D&F 48" Fearnaught Mixing Picker.
1—Oil Mixing Tank.

WOOLEN CARDING

3—Sets D&F Cards, first and second breakers 48" x 48", finisher 36" x 48".
3—Sets D&F Cards, 60" x 48", Bramwell Feeds, 5-29" Spools, 90 ends.
1—Set D&F Cards, 60" x 48", 5-29" Spools.
3—Sets D&F Cards, 48" x 48", 4-29" Spools.
1—Set D&F Cards, 60" x 60".
2—Sets D&F Cards, 48" x 42".
1—B.S. Roy 70" Floor Grinder.

WOOL SPINNING

6—Asa Lees Mules, 360 spindles
2— " " " 342 "
4— " " " 306 "
6—Davis & Furber Mules, 306 spindles
All are 1-¾" gauge, 18 end spools, 8" Bobbins
Total—18 Woolen Mules 5,904 spindles

WOOLEN SPOOLING

5—Warp Compressing Machine Company 30" Jack Spoolers.
1—Davis & Furber 30" Jack Spooler, 40 ends.

DRESSING

3—Davis & Furber Woolen Dressing Frames, fully equipped.

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6 x 2" Flyers—3½" Pitch Tape Drive—Equipped with V Belt for Motor Drive but without Motor

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2½" Ring—192 Spindle

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Includes Pumps & Foxboro Temp. Clock—Also Roll Up Machine—72"

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72"

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Whitin Tape-Condenser—New—Cotton

Model "C"—Serial 425000—Series—40" Width

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85½" High—108" Long—7" Spindle—Centers for 220 Ends—3¼" Spindle—Centers for 440 Ends—Takes Paper Tubes

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All Belt Drive from 5 H.P. Motor—66" wide

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McBride—300 Ends—Suitable for 4" x 8" Roving Bobbins—Equipped with Brake & Elec. Drop Motion

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3—40" Curtis & Marble Cloth Folders—1924 Model.
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1—34½" Kitson Hopper, motor driven with motor, completely rebuilt.
18—Deliveries H & B Drawing, Leather top rolls, 10" Coilers. Ready for immediate delivery.
1—Cohoes Double Cylinder Slasher 7" x 5" Cylinder complete with double roll size box and controls.
100,000 Medium Whitin Quills Brass Bushed
200,000 Skewers for 8" Saco-Lowell Bobbins
1—Barber Colman Model 'K' Portable tying-in Machine completely rebuilt.
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Complete running plant for sale

20 New C&K 4x1 Automatics, model C4—72" Reed space, fully equipped —1½ HP Motors, 3 phase, 220 volt —25 harness dobby—extended shaft for Jacquard
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Complete running plant for sale

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All types of Circular and Flat Knitting Machines, also Parts and Latch Needles. State your needs or send us a sample to match.
Five Cooper Machines, 12 cut.

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GOOD EQUIPMENT PRICED REASONABLY PROMPT DELIVERY

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2—CONDENSERS RUBB for 60" Card with 12" ring doffers
1—CONDENSER TAPE for 60" Card, 2 bank unit
16—Whitin New Model 40" Revolving COTTON CARDS.
1—CARD Single Cylinder 48"x48" with Hopper Feed and Rub Condenser
2—CARDS 48"x48" wood faced cylinders, 4 cylinders per set, rub condenser, hopper feeders, clothed, etc.
4—CARDS, Davis & Furber, 3 cylinder, all iron, 48"x48", complete and clothed, Rub Condensers.
1—CARD, SAMPLE, complete.
1—CLEANER with Buckley Blade Beater, spirawhirl type.
4—CLEANERS, Vacuum, Mill type, motor driven.
1—DUSTER, with B.B. Lumper 48"
1—FEED 54" automatic hopper for Card.
1—FEED 40" automatic hopper with comb for Picker.
2—GARNETTS 60" and 48" units, 3 cylinder machines.
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COMPLETE LABORATORY EQUIPMENT, including Tensil Strength Machine, Bursting Tester, Taber Abraser, Monocular Microscope, Scales, Balance Weights, etc.
13—NARROW FABRIC LOOMS, 6 space to 54 space, 32 hook dobby.
200—DRAPER E LOOMS, 40", belt driven.
90—DRAPER E LOOMS, 28", belt driven.
12—DRAPER E LOOMS, 44", motor driven.
200—DRAPER K LOOMS, 42" cloth, belt driven.
48—DRAPER D LOOMS, 70", belt driven.
70—DRAPER XK LOOMS, 48", motor driven, 20 harness.
32—C&K LOOMS, 50", 2x1 and 4x1 box, motor driven, 25 harness.
190—C&K LOOMS, 58", 4x1 box, motor driven, 25 harness.
12—C&K LOOMS, 82", 4x1 automatic, motor driven, 25 harness.
12—C&K LOOMS, 82", 4x4 box, 25 harness, motor driven.
11—C&K LOOMS, 92", 4x1 automatic, 12 harness, arranged motor (no motors)
7—MULES, 2-240 spindles each, 2⅛" gauge; 2-288 spindles each 2-⅛" gauge; 1-300 spindles 2" gauge; 2-480 spindles each, approx. 2" gauge.
2—MULES, J&B, 336 spindles, each 2¼" gauge, giant size bobbin.
1—OILER for 48" Picker, tank, blower and pump, etc.
1—PICKER, BURR, 48", with automatic hopper feeder, extra set Burr rolls.
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5—SPINNING FRAMES, 240 Spindles each, 3-½" Gauge, 2" ring.
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8—SPINNING FRAMES, Worsted, 160 spindles each, flyer, 3½" pitch.
7—TWISTERS, 156 spindles each, 5" gauge, tape driven.
14—TWISTERS, 108 spindles each, 5½" ring, 7" gauge, tape drive, motor driven.
18—TWISTERS, 224 and 240 spindle units, 1½" ring, 2-¾" gauge, tape drive, motor driven.
1—WARPER, NEW High Speed, 54¼" with MAGAZINE CREEL 1200 ends.
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50—WINDERS, 100 spindle units, swift to spool.
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2—WINDERS, Foster #25, 60 and 80 spindle units, motor driven.
1—WINDER, Foster #35 for Cones 8" traverse.

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1—BATCHER, 2 roll, 60", scrimp bar and brass carrying roll.
1—BRUSH, 2 roll, 54", blower and piping attachments.
1—CALENDER ROLLING Head, 48" heated roll.
2—CALENDERS, 25" face, Husk Roll top, iron roll bottom.
1—CALENDER, 60" face, 4 roll unit, pump, motor driven.
2—CALENDERS, 80" face, 6 roll units.
1—CALENDER, 113" face, 4 roll unit.
1—CAN DRYER, 6 copper cans, 72" x 36" dia.
1—CAN DRYER, 12 tinned steel cans, 140" x 23" dia.
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1—DRYER, LOOP, 84" width, vertical fans, motor driven.
1—DRYER, PIN, 72" width, motor driven fans.
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4—EXTRACTORS, 32" to 60", copper baskets, belt drive.
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3—MANGLES, 80" units, 3 roll machines.
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4—NAPPERS, 72" to 90" wide, 20 and 36 roll units.
2—NAPPERS, Knit-Goods, 72" and 80" wide, 20 roll units.
1—PADDER, 75" face, 2 rolls, both rubber.
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6—SHEARS 45" Single and Double Blade units.
1—SHEAR, Carpet, 12/4, single blade.
1—SLITTER, 42", 87 knives used to slit 22 oz. craft tissue.
1—SCOURING UNIT, RAW STOCK, 2 bowls, 36" width, with automatic hopper feed and RAW STOCK DRYER to handle capacity of same.
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15 Hilscher 42 Gauge, 20 section leggers, with picot, taper heel and 3 carriers. 4 Setco Loopers, 28 point. Knitters cabinets, topping stands, Union Special Seamers, Inspection Boards and Rotary Dyeing Machines.

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2 Sets of DRAWING, 3048 spindles, tape drive Spinning, 946 spindles TWISTERS, 8 SKEIN REELERS, supplies on hand, etc.

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1—Supreme 18", 48 feed, 22 cut machine with individual motor drive and motor, and 48 end electric stopmotions.
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4—Prince Smith Cap Twisters
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FS-129, Textile World
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Ribbon looms, Fletcher or Schaum & Uhlinger 15'8" or 18', 36 to 70 spaces, overhead castle, warp rack, individually motorized and automatic letoff preferred. Principals only. Answers will be kept confidential.

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SCHLEGEL MANUFACTURING COMPANY
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One spindle machines capable of making 12" x 12" tube.

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State size, condition, make and price.

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WANTED

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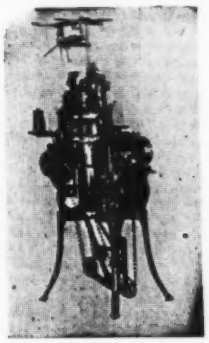
for Sale

MEN'S HOSE MACHINES

LOT	QUANTITY	
12413	5	3½" 200 N 54 Ga. BANNERS with stripers
13530	2	3¾" 106 N 18 Ga. BANNERS with stripers, Rubber Att.
13532	10	3¾" 200 N 48 Ga. BANNERS with Rubber Att. some with stripers.
13412A	15	3½" 200 N 48 Ga. S&W Model B5 Machines with stripers.
14178	14	3½" 200 N 48 Ga. S&W Model B5 stripers, rubber tops.
13511	16	3½" 180 N Acme Wraps with Shog Att.
14055	15	3½" 160 N S&W B5 25 step Spirals with rubber tops, stripers.
14056	12	3½" 160 N S&W B5 13 step spirals (as above)



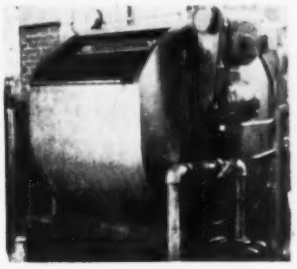
S & W Spiral Model K

LADIES' HOSE MACHINES

LOT	QUANTITY	
12678	10	3½" 300 N 70 Ga. S&W Model K Cradle Sole, French Heel, Picot, etc.
12166	3	3½" 340 N 70 Ga. S&W Model K Cradle Sole, French Heel, Picot, etc.
12770	1	3¼" 300 N S&W Model K 13 step spirals usual Att.
12676	15	3½" 300 N 70 Ga. S&W Model K 25 step spirals, usual Att.
14183	23	3¾" 260 N S&W Model K with cradle sole, French Heel, Picot, etc.
14235	25	3¾" 400 N 75/80 Ga. S&W Model K cradle sole, French Heel, Picot, Rebuilt Machines.

CHILDREN'S HOSE MACHINES

LOT	QUANTITY	
13519	5	2" 100 N 48 Ga. BANNERS Plain
12960	15	2¼" 116 N BANNERS High Cylinder Machines with Rubber Lay-in Att. and stripers.
13567	3	2¼" 120 N 48 Ga BANNERS with Stripers and Rubber Tops.
13568	3	2¼" 130 N 48 Ga. BANNERS with Stripers and Rubber Tops
13533	1	2¼" 200 N 70 Ga. BAINNERS Plain



Dyeing Equipment

DYEING AND FINISHING MACHINES

LOT	QUANTITY	
13649	1	25 lb. Smith Drum 4 Pocket Model 12 RD New, Motor Driven Rotary Dye Machine
12779	1	50 lb. Smith Drum 3 Pocket Model 11 RD, Motor Driven, Rotary Dye Machine
12771	1	50 lb. Smith Drum 4 Pocket, Model 12 RD Motor Driven Dye Machine
12958	1	100 lb. American Laundry 3 Pocket Belt Driven 42x36 Cyl. #9268991 Rotary Dye Machine
12902	1	50 lb. Strickland, Belt Driven, Paddle Dye Machine

PLAIN BODY MACHINE

UNDERWEAR & OUTERWEAR KNITTING MACHINES

LOT	QUANTITY	
14037	2	Brintons 20" 20 cut 48 feed 1248 needles Motor Driven, new electric stop motion
13570	1	24" 20 cut Brinton Jersey Machines 64 feed with Wesco Stop Motions. New
13569	1	20" 20 cut Supreme Type MJ 64 Feed Jersey Knitting Machines with Crawford Electric Stop Motion.
13613	2	24" Brintons 32 feed 16 cut
13614	3	24" Brintons 24 feed 16 cut
13701	1	15" S&W ribber, 8 feed 10x10 cut Motor Driven, new electric stop motion
13633	3	11" S&W ribbers, 8 feed 10x10 cut
13634	3	12" S&W ribbers, 8 feed 10x10 cut

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LOT	QUANTITY	
14229	10	Rebuilt 51 Ga. 30 sec. including round heel, but not automatic welt
14230	8	Rebuilt 51 Ga. 24 sec. Theodore Leibernects, all usual Att. including round heels, but not automatic welt.

SPECIAL "MEN'S HOSE PLANT"

LOT	QUANTITY	
14171	51	3½" 220 N S&W HH 48 Ga. with Stripers, old and new style.
	30	3½" 220 N S&W HH 25 Step Spirals 54 Ga.
	18	20 & 22 PT Sotco Loopers Complete Dye House equipment to finish 5000 dozen per week is included with above machines which are in good condition offered subject to prior.

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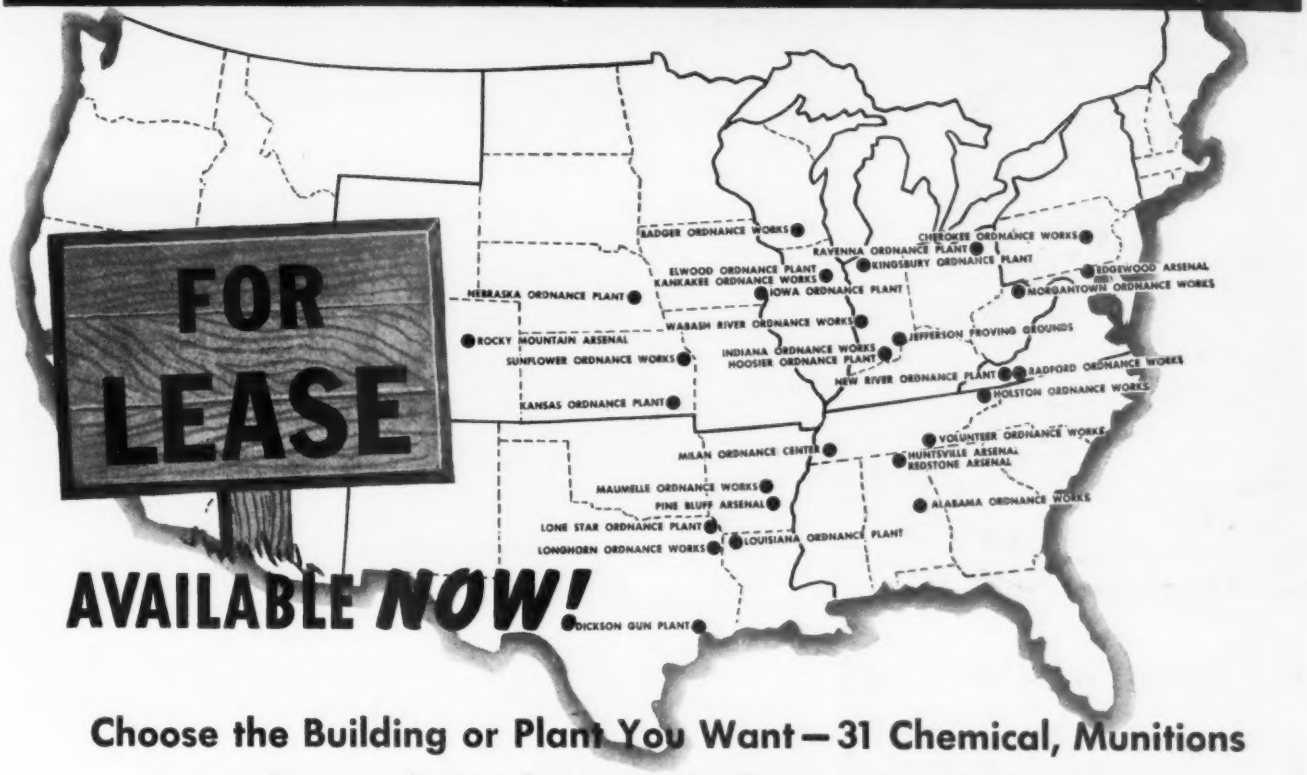

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Subsidiary of Houston Oil Company of Texas

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